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ABSTRACT

This monograph examines issues central to a number of education reform proposals for secondary and postsecondary vocational education. Nine papers, chosen by a jury of the University Council for Vocational Education, are included: "Changing Workplace--Changing Education" (Douglas C. Smith); "Vocational Teacher Education: Emerging Patterns for General Studies, Academic Majors, and Professional Education" (Steve Tozer, Robert E. Nelson); "Considerations for Vocational Teacher Education Reform" (Roger Luft, Mary E. Zimmerer, Lydia Z. Kercher); "Establishing Linkages for Vocational Teacher Education Reform" (Sharon O'Neil, John Washburn); "The Knowledge Base for the Redesign of Vocational Teacher Education" (Mildred Barnes Griggs, Catherine Burnham); "Forces Affecting the High School Curricula and Their Implications upon Vocational Teacher Education" (Jack Rudolph, Betty Fry, Lowell Barr); "Implications of Increasing Numbers of Nontraditional Students for Vocational Teacher Education Reform" (Robert E. Nolan, William R. Venable); "The Place of Training and Development in Vocational Teacher Education: A Strategic Opportunity?" (James A. Leach, Dale T. Snauwaert); and "Influencing Vocational Teacher Education Policy through Research" (Richard L. Lynch). (KC)

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Foreword

Taken together, a number of education reform proposals have caused organizations and groups to carefully examine issues and positions with respect to the secondary and postsecondary vocational education enterprise. One of these groups—the University Council for Vocational Education—is providing the leadership and direction for serious discussion on issues affecting vocational teacher education.

The University Council for Vocational Education includes representatives of twenty-one institutions of higher education who provide a forum in which universities can participate in studying to improve the policies and practices of vocational education. Further, the Council provides a voice for universities regarding trends and issues in undergraduate and graduate education, research, and extension services in vocational education. This monograph was prepared to foster interaction among professionals nationwide and to serve as a foundation for examining issues of importance to vocational teacher educators.

In July 1987, representatives of the University Council identified several issues to be examined with respect to possible reforms of vocational teacher education programs. Contributors to this monograph were selected competitively from proposals submitted to and juried by the Publications Committee of the University Council. They were then encouraged to explore the array of literature and issues associated with their particular topic. The authors present views from nine unique perspectives.

Douglas Smith discusses the changing nature of the workplace based on an analysis of demographic trends, socioeconomic issues, and work force patterns. From this analysis, he notes important implications for vocational teacher education.

Steve Tozer and Robert Nelson discuss current teacher education reform initiatives showing how key dimensions of those reforms relate to vocational teacher education. They conclude by describing a proposed technology teacher education program that couples technological literacy and technological specialization.

Roger Luft, Mary Zimmerer, and Lydia Kercher describe teacher education models that are different from the traditional four-year teacher education program. Their insights are based on a review of existing literature and on a survey of a randomly selected group of teacher education institutions that are Holmes Group, NCATE, and/or UCVE members.

Sharon O'Neil and this author provide the rationale, priorities, and information for establishing and evaluating linkages among education, business, industry, government, and institutions offering vocational teacher education programs. This chapter also considers the external and internal factors affecting such collaboration.

Mildred Barnes Griggs and Catherine Burnham review literature on teacher education programs and note the need for research and evaluation data on such programs. They clearly establish the need for a valid knowledge base for the redesign of vocational teacher education.

Jack Rudolph, Betty Fry, and Lowell Barr recommend reform for vocational teacher education as a response to changes in the high school curriculum and to factors that affect that curriculum. In addition to reviewing related literature, they surveyed a random group of 120 high school administrators from seven western states to examine their perceptions of factors affecting vocational teacher education.

Robert Nolan and William Venable discuss the competencies needed to teach the increasing number of nontraditional students who enroll in vocational education programs. They emphasize the severity of the need for assisting teachers who will work with adult learners and for the design of effective and appropriate internship experiences.

James Leach and Dale Snauwaert point to the increasing demand for training and development professionals in the private sector and the opportunity this presents for vocational teacher education departments in preparing such professionals. Attendant concerns relate to defining the knowledge and skill base to address this preparation, as well as determining methods of certification.

Richard Lynch discusses contemporary teacher education reform in a policy context and identifies eight areas of needed research in vocational teacher education; therefore Lynch suggests that a national center be established to investigate crucial questions relative to the vocational teacher and teacher education. Such reform, while compatible with contemporary philosophy, would recognize the uniqueness of vocational teacher education.

Appreciation is extended to many professional colleagues involved in this project. Of note are the manuscript reviewers: Nevin Frantz, Walter Mietus, Paul Scott, and Annell Simcoe of the University Council for Vocational Education. Geri Ellis's many contributions include an ongoing role in managing the preparation of this monograph. Special thanks go also to Vivienne Lucas Hertz whose editorial skills were invaluable during the final stages of development.

John S. Washburn
Associate Professor and Chair
Vocational Education Studies
Southern Illinois University at Carbondale

Changing Workplace—Changing Education

Douglas C. Smith

The changing nature of the workplace requires adaptation for those preparing to participate in it. As purveyors of job preparation, educators need to provide this adaptation through the retraining of individuals who have not yet learned a marketable skill. This retraining is based on an understanding of the nature of technological change, demographic trends, socioeconomic dynamics, and work force patterns.

Technological Change and the Workplace

The notion that our society is characterized by substantial technological change is inescapable. Toffler (1980) developed the theme of his *electronic cottage* in *The Third Wave.* Naisbitt's (1982) *Megatrends: Ten New Directions Transforming Our Lives* clearly established the context of the information society. The task of an adaptive society is now to understand the nature, extent, and direction that technological change will take. Frequent reference is made in this chapter to *John Naisbitt's Trend Letter*, a semimonthly newsletter of the Global Network, in which the Naisbitt Group presents research intended to develop an ongoing understanding of trends that represent technological, demographic, socioeconomic, and work force change.

Computer Technology

The most visible symbol of technological change in American society has been the computer and related hardware. The silicon chip has led to miniaturization, computing and storage capacity, and a communicating speed that continues to astound even technical people. Scientific advances based on this electronic sophistication have produced a capability to double the knowledge base of mankind every seven to eight years. New semiconductor materials, as well as voice and light technology, provide the technical capability to sustain this pace (Wingo, 1987).

A major stumbling block to human capacity to sustain the technological pace is communications between humans and computers. Aggressive education and training have begun to address the problem through a sophisticated application of the concept of *user friendly*, as usually applied to software's ease of use. This term is being replaced in the marketplace by a similar concept, *user transparency.* In a user transparent environment, the hardware does not interfere in the relationship between the user and the task.

The bases for user transparency in software are simpler, more conversational language and more powerful, simpler command structures.

Communications Technologies

Beyond the computer, a number of key technologies are developing that indicate the direction of tomorrow's technological marketplace. A major breakthrough related to communications is a new pattern of technologies that are able to present the world as a single marketplace. An example is the satellite industry that already allows medical lectures at Harvard to be viewed simultaneously at Chinese universities (Naisbitt, 1988).

Key communications technologies also offering a significant impact on the direction of technological change include computer networking, modems, facsimile transmission, teleconferencing, expert systems, electronic mail, and video itself. These technologies are facilitated by the ongoing transfer of the telephone transmission mode from analog to digital.

Laser Technology

Another technology of major significance to the direction of technological change is laser technology. Naisbitt (1985) predicted that 600,000 new laser-related jobs will be created by 1990. The laser printer ushered in sophisticated business applications. Interactive laser disks, according to Naisbitt, will be the next major laser application for business and other consumer markets. Medicine and manufacturing also represent amazing laser applications. Fraser (1985), in a research report for the National Center for Research in Vocational Education, predicted an annual growth rate of twenty to twenty-five percent in commercial laser sales for manufacturing, medicine, entertainment, printing, and communication.

Robotics

Robotics is another technology of major importance. Naisbitt (1987) forecast 44,500 new robotics-related jobs by 1995. The design, installation, monitoring, maintenance, and repair of robotic systems in manufacturing environments constitute an entirely new classification of employment.

Job loss resulting from robotics has been a major concern of organized labor. A study by the Upjohn Institute for Employment Research (Hunt & Hunt, 1983), however, did not foresee significant job losses from robotics. The study did foresee such losses for the less experienced, less educated segment of the work force. The study concluded that robotics will eliminate many jobs for the semi-skilled and unskilled, while creating many new technical jobs. Robotics also creates jobs that may speak to technical skills but in reality require limited skills.

Computer-Assisted Technologies

Microelectronics is not the only area of emerging technology. The computer has fostered many that remain conceptually independent. For example, transportation anticipates the possibility of an 145-minute trip to Tokyo, solar-powered cars, and electromagnetic buses. Meteorology may defuse hurricanes and control precipitation. Genetics, through biotechnology, can alter life forms in agriculture and human biology (Wingo, 1987).

Impact on Employment

The impact of technology on employment is a major concern to American society. Rumberger (1984), a researcher with the California Institute for Research on Educational Finance and Governance, concluded that technological advances may lower employment growth rather than destroy more jobs than they create. The type, both eliminated and created, however, will generally be low-skill and low-wage jobs.

The following projections for the impact of technology on employment were presented to the Future Studies Symposium of the California Community Colleges (Conrath, 1984):

1. Developing technology will affect how work is performed but contribute little to total job growth.

2. Overall income distribution is likely to flatten in the middle range and rise in high and low ranges.

3. Economic change will occur rapidly, but unevenly, resulting in frequent worker displacement and business starts and failures.

4. Growth of high-technology industries will be related to commercialization of products.

5. Output will largely depend upon advantageous technical development, improved educational and training systems, increased productivity, and commercial diversity.

6. Global interdependence will continue to affect trade balances, monetary values, employment, and wages.

Impact on Work Quality

The impact of technology on the quality of work is also a societal concern. For example, in the *Chicago Tribune*, Cross (1988) discussed two recent books that examined the adverse effect of technology on work. In *Time Wars*, Rifkin discussed the impact of faster technical speed on human time demands (as cited in Cross, 1988). The faster pace dictated by faster technology creates a dysfunction because, for the first time in human history, time is

organized beyond the realm of human consciousness. In *Technostress*, Brod discussed the impact of technology on personality. He concluded that people sacrifice "their psychological well-being for the predictable, rational, logical safety of a computerized environment" (as cited in Cross, 1988, p. C1)

As further evidence of the adverse effect of technology, Cross (1988) cited the work of Csikszentmihalyi, a behavioral scientist at the University of Chicago, concerning impatience in human relations. Csikszentmihalyi maintained that a new shortness or impatience in human relations exists because people become conditioned to the yes/no response pattern of technological equipment.

Employment and Technology

What then will be the impact of technological advances on American society? The federal government released in May, 1988, the results of a study prepared by the Office of Technology Assessment on the new technologies ("Technology Could Usher," 1988). The study concluded that advanced technology will reshape virtually every U. S. product, service, and job. Emerging technologies, according to the study, present an opportunity to expand educational opportunities, reduce sickness and extend life, and make work more rewarding by using machines for tedious, repetitive jobs.

This report on new technologies also warned of the danger of mismanaged change. The possibility exists for change to "create an America in graceless decline, its living standards falling behind those of other world powers" ("Technology Could Usher," 1988, p. A4). The report recommended careful consideration of such broad policy issues as taxation and regulation to provide leadership for technological change.

Demographic Trends Affecting the Workplace

Demographic trends reveal some significant changes in the makeup of American society. Foster, Jackson, Cross, Jackson, and Hardiman (1988), in discussing future work force diversity, projected that by 2020 an aggregate of American Indians, Asians, Africans, and Hispanics will constitute a minority majority in the United States. A look at the demographics of the entering kindergarten classes lends credence to this projection. Hodgkinson (1987) noted that more than one-third of five-year olds are minorities. Where they are from and where they are going to differ significantly. Rather than the 1920s European pattern of immigration to the Northeast and Midwest, the United States is experiencing a South American-Asian pattern of immigration to the Southeast and Southwest. This pattern represents eighty-three percent of the immigration to the United States.

The largest segment of the growing minority population is Hispanic. Naisbitt (1986) noted the market potential of this group, which is increasing at five times the national growth rate. Hispanics in 1986 owned 300,000 businesses with sales exceeding $18 billion a year. Tremendous market potential exists for ethnic entertainment, education, food, financial services, and consumer goods.

Aging of the Population

Another major demographic trend is the aging of the American population. The aging of the *baby boomers*, born between 1946 and 1964, is of particular importance because of the segment's size—77 million.

This group is moving into middle age at the rate of four million a year. This pace will continue through this century (Naisbitt, 1988).

The effect of the aging of the baby boomers is felt in both the workplace and in the marketplace. This age group is approaching peak employment levels and is exercising its concern for upward mobility and retirement planning. The buying power that this group represents affects the marketplace through transforming the orientation from youth to middle age.

On the other hand, growth in the over-65 segment is varying. For example, the segment 65-69 will grow from 8.8 million in 1980 to 10 million in 1990 but will dip to 9.1 million in 1990. The 65-74 segment will grow at the rate of the general population (1%) until 2000. Rapid growth in the over-65 segment will take place from 2011 through 2030, which will double the 1986 population percentage by 2030 to twenty-one percent (Naisbitt, 1986).

Two-Income Families

The increasing percentage of two-income families is a demographic trend that affects demand in the marketplace. Currently forty-four percent of families have dual-wage earners, and Chase Econometrics have projected that fifty percent of all families will have dual incomes by 1990 (Cross, 1988). The time demands of two-income families create a market for personal services and for time-saving appliances. Teenagers, although a decreasing population segment, assume more responsibility for shopping and for determining consumer choice, therefore, exerting more influence on the marketplace. In 1987, teenagers spent $40.5 billion on groceries and minor household items. This represents a twelve percent increase from 1986 and $10 billion more than teenagers spent on themselves (Naisbitt, 1987).

The Singles' Population

Singles also contribute to the concept of timesaving as a viable attribute of service. The singles' influence results from a postponement of marriage, the high divorce rate, and the elderly outliving their spouses. Naisbitt (1988) estimated that twenty-five percent of today's heads of household are singles. The influence from both the singles and the two-income families contributes to the increasing demand for such personal services as home delivery and home repair.

Migration Patterns

Migration patterns affect where people live and work. For some time the patterns have reflected movement from the North and East to the South and West. With the exception of New England and the *waterbelt* economic revival in the Great Lakes region, this trend appears to be continuing. Naisbitt (1986) projected that sixty-five percent of all population growth through 2000 will take place in Florida, Texas, California, and Massachusetts.

The U.S. Census Bureau's 1984 geographical mobility report also detected the first movement back to cities (Naisbitt, 1986). This movement, although moderate and as yet too short termed to constitute a major trend, represents a dramatic change in geographic mobility. Major cities may sustain this change through their economic development efforts in revitalizing their downtown sections and in working to attract new business and industry.

Socioeconomic Issues Affecting the Workplace

Socioeconomic trends not attributable to demographics are affecting the American workplace. These trends present issues to be dealt with through public policy, including globalization, economic development, and accountability.

Globalization

Globalization is the breakdown of national boundaries and the perception of the world as one diverse community. Technology, economics, and environmental concerns have produced this trend. Technology has produced what Naisbitt (1985) called *portable communications* that are based on individual linkages in computer networking and on telephone technology, which do not require going through a national system. With this technology, national boundaries represent an unnecessary limitation to the capacity of the system and to the system user. Evidence of this phenomenon is the increasing use of an international toll-free number and the satellite technology used in Europe whereby, during international broadcasts, voice synthesizers translate programs into the language of the viewing audience.

Business and state and local governmental officials, in seeking opportunities for economic development, increasingly are considering the world as a business state independent of national boundaries. Government officials have solicited commercial ventures without regard to national origin. Businesses have sought commercial sites based upon economic, rather than nationalistic, considerations. Some industries with a global marketplace perspective include fast food, clothing, lumber, and technology. Traditional international markets, such as tourism and natural resources, continue to expand despite pockets of political instability.

Prevailing antiprotectionist attitudes in government, particularly in the United States and Great Britain, and an easing of doctrine in the Eastern Bloc have reduced the effects of national boundaries. The effect of technology on stock and currency exchange and its

potential for leveling international productivity continue to foster the concept of one international business state.

Concern for the environment is global. Organizations such as Green Peace continually draw international attention to their causes. International environmental concerns, from acid rain and ozone breakdown to oil spills, create an international demand for remediation. Accidents, such as those at Chernobyl and Bhopal, have blurred the national/ international scope of disasters.

Economic Development

Economic development, which has been a major issue for cities and states as well as for nations, is a global issue. Third World nations have attempted to participate in the prosperity enjoyed in the West. Western countries have been searching for a uniform economic development for underdeveloped areas. Aging industries are seeking a *Massachusetts miracle*, the economic growth phenomenon that brought Governor Michael Dukakis to prominence. Communist countries have become less dogmatically rigid by opening markets, allowing limited private ventures, and encouraging exports.

Accountability

Accountability is a growing global concern. On the local, state, and national levels, safety issues, such as smoking and the use of helmets and seat belts, have resulted in revised business policies and governmental regulations. Some industry analysts regarded the famous Pinto murder case against Ford as the catalyst for corporate accountability. Naisbitt explained that accountability has gone far beyond the legalistic complacency of *non-negligence* to active prevention. In the case of Ford, the effort was directed to quality assurance and to assumption of responsibility when an incident occurs. Ashland Oil Company's corporate behavior in 1988, when it quickly acknowledged responsibility for the mammoth oil spill and offered expeditious assistance, serves as an example of a changing—and accountable—corporate response.

On the international level, outcries for government accountability have resulted from the 1987 Iraqi bombing of the U.S.S. Stark, the 1988 Israeli treatment of Palestinian protesters, and the U.S.'s economic measures imposed on Panamanians in an effort to oust General Noriega. The adverse reaction to Union Carbide for the Bhopal accident and negative publicity from the news program 20/20's expose of Beechnut baby food sales in domestic and foreign markets are examples of the outcry for corporate accountability.

Work Force Patterns

Patterns in the work force constitute important societal change. These changes include the decreasing supply of adequate labor, the increasing participation and the stature of women in the work force, and increasing concern for work life issues, changes in organizational structure, and changing work styles.

Labor Supply

A scarcity of adequate labor resulting from the previously discussed demographics is growing acute. By 1990, four to five million fewer entry-level workers will be available than in 1980 (Naisbitt, 1986). This indicator is particularly foreboding for information and service industries that depend upon such employees.

The market will respond to the shortage of entry-level employees by taking, or advocating to government, remedial action. Those actions include accelerating affirmative action, providing company-sponsored training programs, and advocating the easing of immigration restrictions.

Women

The emergence of women as full economic players in employment is supported by their demands and by their numbers. The Bureau of Labor Statistics has estimated that women will represent sixty percent of the work force by 1992. Women are prepared to assume their role in employment bolstered by the awareness that the women's movement has created and by economic pressures. Women are bringing enhanced preparation to the work force as well. Women now comprise about one-third of enrollments in schools of law, medicine, business, and architecture. Women are also becoming entrepreneurs in higher proportions than men are (Leach & Chakiris, 1988).

Work Life Issues

Changes in the workplace have increased the concern for work life issues. A major work life issue is child care responsibility that includes accommodations for both day care and parental leave. Parents also want flexible hours and leave policies, job sharing, and part-time arrangements to accommodate their family situations. The number of companies in the United States with day care centers increased from about 100 in 1978 to about 3,000 in 1987. The projected number of children under six with working mothers will exceed 15 million by 1995 (Naisbitt, 1988).

Health care and health insurance are also important work life issues for labor. The new mandatory health insurance law enacted in Massachusetts is an example of that concern. Naisbitt (1985) also saw the increasing existence of corporate clinics as an example of business' accommodation of work life issues.

Wellness programs are another example of work life concern. As self-help health programs, wellness is a concept popular with workers and business. Some companies now pay employees for such activities as losing weight, stopping smoking, exercising, and taking physical exams (Naisbitt, 1985).

Other work life issues include job security, job safety, and environmental conditions. These issues are the subject of new business policy and government legislation, such as smoking restrictions and the plant closing provision of the controversial 1988 Trade Bill. President Reagan vetoed this bill but allowed a subsequent bill with similar provisions to become law without his signature. This law, known as the Worker Adjustment and Retraining Notification Act (1988), requires that employers offer transfers to employees in the situation of plant closing or layoff resulting from business relocation or consolidation. The law further requires that employers provide written sixty-day notice of plant closing or mass layoff.

Organizational Structure

Work force patterns also include some change in organizational structure. Futurist Snyder projected that promotability will decline by 1995 from the current 1 in 20 to 1 in 40 or 50 (as cited in Wingo, 1987). Mid-career compaction, for example, is a pattern that encourages middle-age workers to become entrepreneurs because a narrowing of promotional pyramids retards promotion. They may also move into the small businesses that will increasingly fold.

The increasing popularity of participatory management is also an organizational issue in requiring employees to be prepared to participate in decision making. Futurist Wingo (1987) described this process as a change from the *wedding cake* hierarchical corporate structure to one whereby employees use such tools as artificial intelligence to develop a potential for decision making.

Work Styles

Work styles in the U.S. workplace are also changing. In a discussion of the future of jobs, work, and careers, Leach and Chakiris (1988) stressed that an understanding of the nature of careers is necessary to comprehend the change in work styles. They described the traditional path or upward mobility as *linear career* form. Newer forms that encompass various forms of permanent, temporary, and part-time work are labeled *free-form* careers. These jobs are not structured within a corporate organizational chart. A third category of careers is labeled *mixed-form* careers. These are characterized by a behavioral transition wherein a change is desired in skills, knowledge, and attitude.

Career formats also assume different structures. For example, employees can be leased, and jobs can now be shared or permanently temporary. Flextime is common, and the flexplace (work at home) is becoming more prevalent (Wingo, 1987).

Implications for Education

General education and vocational education face challenges from workplace changes. These challenges, presented here as implications, require leadership in curriculum planning and instruction.

General Education

The changing workplace raises the following important implications for general education:

1. Technology is becoming a tool of daily life.
2. Society in the United States must be prepared to deal with ethical questions related to technology's potential.
3. Communications and technological changes are mutually inclusive.
4. Literacy is vital to participation in economic and technological development.
5. Participation in a global economy requires broad economic understanding.
6. The lessening importance of national boundaries, the increasing minority populations, and the ability to relocate to improve economic participation require a consciousness of diverse cultures.
7. Accountability is an increasing expectation for business, government, and education.
8. The relationship of work and education is increasingly long term.
9. Career development requires an understanding of the nature of careers and the ability to make decisions.
10. The changing nature of the educational needs of the workplace requires that the educational experience becomes a joint venture of school and business.

Vocational Education

As in general education, important implications face vocational education. They include the following:

1. For general education to succeed in meeting the needs of a changing workplace, all segments of the educational enterprise must accept changes in technology, communications, global economy, accountability, and careers.

2. Tools in the workplace are undergoing fundamental change.

3. The changing workplace requires enhanced technical literacy.

4. Training programs are needed to sustain the influx of women and other minorities into the workplace.

5. The workplace provides various forms of career development and work styles.

6. Workers require lifetime occupational education.

7. Education and the workplace offer complementary learning experiences.

Changing Education—Changing Policies

Vocational teacher education must be restructured in response to the changing needs of the workplace. Preliminary steps for this restructuring are to effect policies, such as the following, in which vocational education must address the needs of the workplace through the following actions:

1. Aggressively recruit intellectually talented students who are capable of the critical thinking that major change requires. This recruitment must be specifically extended to women and other minorities who comprise an increasingly larger proportion of the work force.

2. Present the vocational education curriculum as an extension of general education. Students in occupational education need the complementing strength in both programs to gain the intellectual and technical skills that workplace change requires.

3. Research the application of the teaching process to areas of change in the workplace, particularly in technology, transforming research into tested methodology and practices in teacher training.

4. Lend context to technology by making communications a primary component in the content curriculum of vocational teacher education.

5. Develop technical literacy and a commitment to continuing education in technical literacy as a major area of vocational teacher preparation.

6. Foster a global perspective, critical thinking skills, and adaptive techniques in prospective vocational teachers by including a broad liberal arts, economics, and political science component in teacher preparation.

7. Redefine career education to include career development in various career forms and work styles.

8. Approach vocational teacher education as career preparation with competing roles in human resource development, such as teacher, trainer, insect coordinator, researcher, curriculum developer, and software developer.

9. Broaden the pool of change-oriented professionals by extending access to vocational teacher education to a diverse population of traditional students, noneducation majors, and people with relevant experiential backgrounds.

10. Encourage curriculum updating, monetary support, and staff training by expanding linkage opportunities with business in vocational teacher preparation.

Technology, demographics, socioeconomics, and work force patterns are undergoing substantial change. These policies recognize the issues and provide the adaptive orientation required for preparing for a changing workplace.

References

Conrath, N. (1984, October). *Trends in technology and employment.* Paper presented at the Future Studies Symposium, California Community Colleges, San Francisco.

Cross, R. (1988, May 14). Modern time bandits: Technology drains energy from our lives. *Lexington Herald-Leader*, p. C1.

Foster, B. G., Jackson, G., Cross, W. E., Johnson, B., & Hardiman, R. (1988). Work force diversity and business. *Training & Development Journal, 42* (4), 38-42.

Fraser, J. L. (1985). *Laser applications: Implications for vocational education.* (Report No. CE-041-308). Columbus: The Ohio State University, National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 255 760)

Hodgkinson, H. (1987). Today's curriculum: How appropriate will it be in the year 2000? *NASSP Bulletin, 71* (498), 3-7.

Hunt, A. H., & Hunt, T. L. (1983). *Human resource implications of robotics.* (Report No. CE-035-770). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research. (ERIC Document Reproduction Service No. ED 228 547)

Leach, J. L., & Chakiris, B. J. (1988). The future of jobs, work, and careers. *Training & Development Journal, 42* (4), 48-54.

Naisbitt, J. (1985). Forces transforming the economy, business, technology, society, and the world [Index]. *John Naisbitt's Trend Letter, 4.*

Naisbitt, J. (1986). Forces transforming the economy, business, technology, society, and the world [Index]. *John Naisbitt's Trend Letter, 5.*

Naisbitt, J. (1987). Forces transforming the economy, business, technology, society, and the world [Index]. *John Naisbitt's Trend Letter, 6.*

Naisbitt, J. (1988). Forces transforming the economy, business, technology, society, and the world [Index]. *John Naisbitt's Trend Letter, 7.*

Naisbitt, J. (1982). *Megatrends: Ten new directions transforming our lives.* New York: Warner.

Rumberger, R. (1984). *High technology and job loss.* (Report No. EA-016-985). Washington, DC: National Institute of Education. (ERIC Document Reproduction Service No. ED 246 534)

Technology could usher in golden era or age of decline. (1988, May 15). *Lexington Herald-Leader,* p. A4.

Toffler, A. (1980). *The third wave.* New York: Bantam.

Wingo, W. (1987). What's ahead for tomorrow? *Nation's Business, 75* (9), 68-70.

Worker Adjustment and Retraining Notification Act, Pub. L. No. 100-379 (1988).

Douglas C. Smith, Ph.D., is an assistant professor, Business Education, Department of Vocational Education, University of Kentucky, Lexington, Kentucky.

Vocational Teacher Education: Emerging Patterns for General Studies, Academic Majors, and Professional Education

Steve Tozer and Robert E. Nelson

Recent national studies and reports regarding teacher education reform initiatives have caused most disciplines to review their teacher preparation programs. All phases of these programs need to be critically analyzed in terms of the future needs for secondary school teachers. If they are implemented, these initiatives will have tremendous impact on traditional vocational teacher education programs.

There is a particular need to re-examine vocational teacher education programs to address the skills that teachers must impart to high school students for their success in the workplace of the future. The business community has called for increased emphasis on developing basic skills in mathematics and in written and spoken communication as essential for workers in the changing labor market.

Another reason that a new approach to vocational education may be needed is that no longer can students at the high school level learn a specific skill that will provide job security either in the short-term or the long-term. In *Servicing the New Corporation*, the American Society of Training and Development (ASTD), an association of training specialists, has estimated that seventy-five percent of all workers currently employed will need to be retrained by the year 2000 because of job changes that will require improved skills (ASTD, 1986). Given these findings, new curricula and new approaches are needed to prepare young people for the world of work. As a result, changes in the preparation of vocational teachers will also be necessary.

Current Reform Initiatives

Some have argued that the connections between national economic needs and educational needs, as determined by a relatively elite corps of leaders in positions of influence, have been far too strong (e.g., Carnoy & Levin, 1985; Margonis, in press; Wirth, 1987). Two of the earliest and most important reform reports, *A Nation at Risk* (National Commission on Excellence in Education, 1983) and the less publicized, but perhaps equally influential, *America's Competitive Challenge* (Business-Higher Education Forum, 1983) have been criticized by educators who charge that educational aims have been held hostage

to the aims of business and interests of national defense. *A Nation Prepared: Teachers for the 21st Century* (Carnegie Forum on Education and the Economy, 1986) followed earlier educational reform reports in its emphasis on national economic needs as a rationale for educational reform.

The educational fervor generated by the business community has created a climate favorable to other reports that have placed the educational interests of students ahead of the economic interests of corporate America. For example, the American Educational Studies Association's *Pride and Promise* (Raywid, Tesconi, & Warren, 1985), and the National Commission on Excellence in Teacher Education's *A Call for Change in Teacher Education* (1985) belong to this category. Other teacher education reform reports are also much less economy driven than the Carnegie report. Among these manifestos, the Holmes Group's *Tomorrow's Teachers* (1986), as it relates to the purposes of education and the nation's economy, is undoubtedly the most provocative and potentially the most influential.

Despite the different orientations of the Holmes and the Carnegie reports, they share a number of common recommendations for the reform of teacher education. These reflect a genuine overlap between the conclusions of those most driven by economic concerns and those most driven by more basic educational concerns. While these reports have different priorities regarding solutions to the problems confronting education, some of their recommendations are quite similar. Whether the authors of these different reports are more concerned about economic competition with Japan or with the failure of schools to develop the minds of young people, they seem to agree that our schools are not educating students as well as they could be. In addition, they argue that colleges and departments of education are not preparing teachers as well as they should be. From somewhat different perspectives then, the authors of the Carnegie report, the Holmes report, and others recommend strengthening programs of teacher education.

A review of recent teacher educational reform reports reveals that no single orientation encompasses their recommendations for teacher education. To examine why general education, for example, is important in the context of the Holmes initiative may overlook the rationale behind the same recommendation in the Carnegie report or in the National Commission on Excellence in Teacher Education's *A Call for Change in Teacher Education* (1985). The intent of this chapter is to outline an approach for vocational education that is consistent with the recommendations of the Holmes report, *Tomorrow's Teachers* (1986). The report provides an adequate context for examining a sound rationale—though perhaps not the best solutions—for new directions in teacher education. It also has the provisional support of colleges of education in major research and teaching institutions such as the University of Illinois, Urbana-Champaign. In using the Holmes initiative to discuss vocational teacher education, however, the intent is not to analyze the Holmes report systematically, but rather to make remarks about the importance of such reports for vocational teacher education in the current economic and educational context.

The Need for Reform

The new agenda for teacher education reform in *Tomorrow's Teachers* (1986) revolved primarily around the need to improve education in our schools, rather than the need for the United States to compete economically in the world marketplace. "America's dissatisfaction with its schools," the Holmes report began, "has become chronic and epidemic" (p. 3). While the authors recognized that there are a number of arenas for the improvement of schooling, they chose to focus on one important arena: the education and professional preparation of teachers. They sought to improve education in schools by making "the education of teachers intellectually more solid" (p. 4), to make the profession of teaching more attractive to better quality college students, to raise the standards of entry to the profession, to create better professional relations between schools and teacher education institutions, and to make schools themselves "better places for teachers to work and to learn" (p. 4).

Whether the recommendations of the Holmes report will lead to significant improvement in schooling remains a point of vigorous discussion, and some vocational educators are among the strongest critics of the Holmes agenda in this regard (e.g., Preparing vocational teachers, a special issue of the *Vocational Education Journa*l, 1987). Even if the Holmes recommendations—and others like them—are appropriate for elementary and secondary teacher education, do they represent the best course of action for vocational education? It appears to be true that the Holmes agenda, if adopted by university vocational teacher education programs, would mean dramatic changes in these programs. This threat to business as usual in vocational education may have come at an opportune time. Changes in the workplace, the university, and in the general economy have already created serious pressures that threaten the very existence of vocational education. For example, Adams, Pratzner, Anderson, and Zimmerer (1987) reported that in the last several years the number of faculty in major vocational teacher education programs has decreased, enrollments and graduates of doctoral programs have decreased, and state and university financial support has decreased.

Future Challenges for Vocational Education

These trends among university vocational teacher education programs may be only the beginning of their problems, however, unless other fundamental changes in society are taken into account. Chief among these are the realities of the workplace, which is increasingly becoming a two-tier service economy with the greatest numbers of new jobs occurring in very high-skill and very low-skill occupations (Carnoy, 1987; Riche, 1988; Wirth, 1987).

On the one hand, according to the U. S. Bureau of Labor Statistics, the greatest numbers of new jobs in the next decade will be partly in a few professional areas, such as teaching, nursing, and top executive positions, none of which are the traditional province of secondary school vocational education programs (Riche, 1988; Rumberger & Levine, 1984). On the other hand, there will be an even greater increase in the number of very low skilled jobs that provide little opportunity for advancement, such as janitors, waiters and waitresses, retail clerks, guards, and truck drivers. In these jobs, vocationally educated people have no

decided edge over nonvocationally educated people who have basic skills (Weisberg, 1983). For all but a few of the job categories that are projected to have the most growth in the next decade, training can be obtained on the job in a short time with little expense.

This situation makes it difficult to justify vocational education programs as training grounds for the world of work. Only a few of the jobs that will show the most growth in the next decade—secretaries, office clerks, and data processors—fall into the categories that vocational education programs have traditionally best served by offering students training in high school that is difficult to acquire on the job. If vocational education is primarily preparation for the world of work, it is not clear that these few job categories will provide adequate justification for massive secondary school vocational education programs in the future.

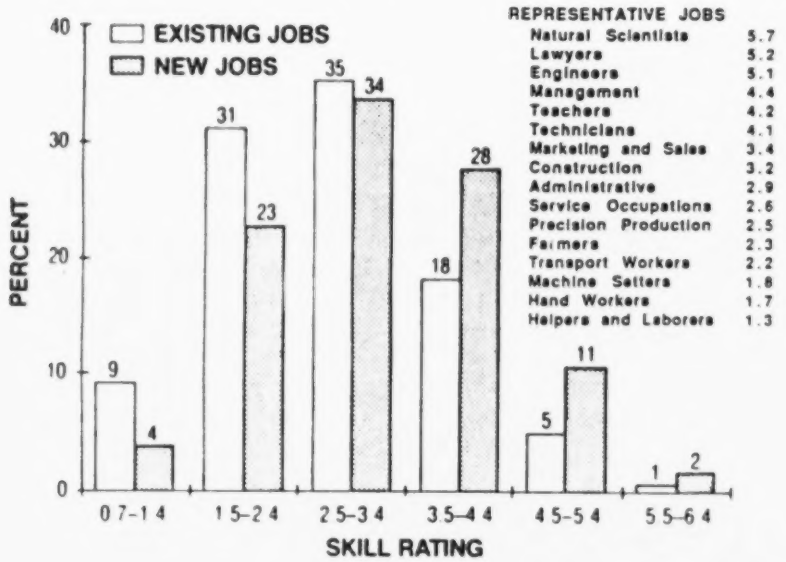

Figure 1
Low Skilled Jobs Are Declining
Source: Johnston & Packer, 1987, p. xxii

The results of a Hudson Institute study (Johnston & Packer, 1987), illustrated in Figure 1, indicate that the kinds of jobs now increasing in number require general computational and communication skills, rather than job-specific skills. Although Figure 1 is entitled "Low Skilled Jobs Are Declining," it is important to note that the occupational areas showing the most growth are those that demand higher levels of education than secondary vocational education programs provide, such as scientists, lawyers, teachers, engineers, and management. Sixty-one percent of new jobs will still be in the lower half of the skill continuum—yet even in those low-skilled areas, demands for math, language, and reasoning skills are increasing.

> Ranking jobs according to skills, rather than education, shows the rising requirements even more dramatically. When jobs are given numerical ratings, according to the math, language, and reasoning skills they require, only 27 percent of all new jobs fall into the lowest two skill categories while 40 percent of current jobs require limited skills. By contrast, 41 percent of new jobs are in the three highest skill groups, compared to only 24 percent of current jobs. (Johnston & Packer, 1987, p. xxi)

Added to these concerns are teacher education reform reports—such as the Holmes report—that would require college students to invest increased time and dollars in teacher certification programs when there are competing opportunities elsewhere. Adams et al., recited a familiar concern:

> Discouraged by longer preservice programs and stricter teacher certification requirements at the secondary level, would-be vocational teachers from colleges, the military, or business and industry are likely to reconsider their career options. If they opt to pursue a career in vocational teaching, they might well shift their employment preference away from public secondary schools and toward postsecondary community colleges and technical institutes or toward employment in the private sector where entry requirements are less imposing and remuneration is more attractive. (1987, p. 25)

Understood this way, changes in the workplace—in state and institutional support and in teacher certification requirements—all seem pointed in "a worrisome direction" for vocational teacher education programs (Adams et al., p. 25). However, this may not necessarily be the case. It is possible that new vocational teacher education programs emerging from reform initiatives will be based on a revised notion of vocational education—and on a new conception of the vocational education teacher.

An Emerging Paradigm for Vocational Education

Data from Table 1 enable a comparison of a current paradigm for vocational education, which is rooted in the economic and education conditions of the early 1900s, with an emerging paradigm (Pratzner, 1985). In the traditional model, the content of vocational studies was (and often still is) derived from the needs of industry and business, and vocational training was aimed at developing entry level skills for particular jobs (Wirth, 1987).

Wirth summarized Pratzner's emerging paradigm as follows:

> The alternative paradigm . . . instead of stressing the learning of specialized occupational skills, should focus on development of *sociotechnical literacy*. Sociotechnical literacy emphasizes a balanced concern for the social-human aspects of work, as well as the technological dimensions, and an appreciation of their interactions. It includes development of basic skills, but also (a) higher-order transferable skills such as interpersonal and group-process skills, problem-solving, decision-making, planning, and communication, and (b) skills in the organization and management of production such as skills in business economics, business operation, and statistical quality control. It also includes an understanding of the philosophical underpinnings and consequences of the shift from a mechanistic, technological, scientific management perspective of work to a higher worker involvement, participative management perspective. (Wirth, 1987, p. 70)

According to Pratzner's model, the vocational teacher is not someone who trains people with specific skills or even attitudes and habits for the world of work, but instead equips students with higher order, more generally applicable, communication and interpersonal skills. These include the ability to think reflectively and express themselves critically about the world of work. The primary aim is not to satisfy the needs of industry, but to satisfy the developmental and general education needs of students. As Dewey said, the distinction is that of educating "*through* vocations instead of training *for* vocations" (1966, p. 310).

Table 1

Current and Emerging Paradigm of Vocational Education

Components of a Paradigm	Vocational Education	
	Current Paradigm	Emerging, Alternative Paradigm
An Image of the Subject Matter	. Entry-level skill development for specialized jobs . Content/subject area . Serves the interests of employers/ jobs/society	. Alternative instructional approach to learning . Process . Serves education and development needs of students
Beliefs in Particular Theories and Models	. Job analysis . Scientific method . Behavior modification . Teachers impart knowledge . Learning as product/emphasis on content . Acquiring "right" information once and for all	. Cooperative learning . Socratic questioning . Learning how to learn . What is "known" may change . Encourages autonomy . Supports general education development of learner
Values	. Job placements/earnings . Employer satisfaction . Inculcate specialized skills for specific roles . Alternative track for academically less-able/less-willing	. Individual performance in terms of potential . Egalitarian/democratic . Students assume responsibility for own learning . Achievement plus enjoyment . Alternative approach to learning for all students
Methods and Instruments	. Lockstep progress . Norm-referenced grading/testing . Rigid, prescribed curricula . Traditional occupation service areas . Business/industry involvement	. Criterion-referenced grading/ testing . Cooperative/group learning . Divergent thinking encouraged . Electives . Focus on transferable skills
Exemplars	. Most secondary and post-secondary programs, to varying degrees	. Some graduate-level programs . Some industrial arts/career education programs . Some career guidance programs
Social Matrices	. AVA divisions, convention, journal; student vocational clubs, federal legislation; state department of vocational education	. Informal networks; Paidea Proposal; Society for Humanistic Education; AEAR SIGS on School Effectiveness and Wholistic Education

Note: The designation of the six components of the paradigm are abstracted from Mohrman and Lawler (1981) as cited in Pratzner (1985), p. 8.

As Pratzner noted, such a paradigm would require vocational educators to develop alternative approaches to instruction—approaches that would creatively use vocational materials, subject matter, and settings in an effort to develop the skills, understandings, and dispositions of educated people, not of compliant workers. Such alternative instructional outcomes might promise to be especially effective with students for whom college preparatory and general curricula are least successful—students who appear to be growing in number. One great danger of targeting low-achievement, disaffected students, however, is that vocational education programs will be regarded—as they often have in the past—as dumping grounds for low-ability students. A greater danger is that these vocational programs will simply seek to orient low achieving students to low skill occupations by lowering their expectations and fitting them into minimum wage, minimum advancement jobs without having developed their intellectual, critical, and communications capabilities to their potential.

Under such a paradigm as Pratzner suggested, the demands upon vocational educators would be great. Perhaps the greatest virtue of this paradigm is that it does not limit the educational aims of students by the limited educational demands of the workplace. Instead, the paradigm recognizes that the workplace of the future (and already in the present) will not demand much, either intellectually or educationally, of the great majority of workers. This approach seeks to educate all students well beyond the demands of the workplace and is worthy of the name vocational education, not merely vocational training. It seeks to educate *through* vocations, not *for* vocations.

New Models in Vocational Teacher Education

Based on this view of vocational education's future, teacher education reforms take on new significance. Vocational educators who can skillfully and insightfully educate through vocations, and not merely for them, will need to (a) be well-educated; (b) have an unusual grasp of innovative teaching methods; and (c) have a grasp of the economic and sociological realities of the world of work, which surpasses the knowledge of their peers in nonvocational elementary and secondary teacher education programs.

The value of preparing such vocational educators will be fourfold. First, they will be uniquely able to engage students in activities that develop intellectual skills and understanding where traditional methods are rejected or unsuccessful. Second, they will be equipping students with the communication, interpersonal, and reasoning skills that will give them the greatest flexibility in the uncertain job market of the future. Third, they will be opening doors for these students by making advanced education a real possibility. And fourth, such educators will be exploring the potential of a curricular method, if Dewey was correct, that should prove successful for all students and not just those who are disenchanted and disaffected. Vocational educators have the opportunity to take a lead in implementing a teaching approach that could prove beneficial for the entire school curriculum and could break down status barriers between vocational and academic education. Such a distinction too often prevails, and it was one that Dewey abhorred as indicative of failed educational programs, both vocational *and* academic.

If the aims for the vocational education programs of the future can reasonably be that ambitious, then the education of the vocational teacher must be similarly ambitious. If vocational educators—such as those described here—can be reliably prepared, it will take greater efforts and greater investments of time and funds than are currently allocated. The remainder of this chapter focuses on how several key dimensions of the Holmes report, as representative of other similar reports, relate to the emerging paradigm of vocational education.

General Studies

A common mistake in thinking about the Holmes report's emphasis on general education is to begin by asking, "How will strengthened liberal education make a better vocational (or elementary or social studies) teacher?" The Holmes report itself invited that question by claiming liberal education is more important for teachers than for any other professional group because knowledge is the business of teachers. However, the most fundamental reason that teachers should be generally well educated, and not just prepared vocationally, is independent of their future role as teachers. Simply put, future teachers deserve the best education that colleges and universities can provide. Just as high school vocational education teachers should not be limited in what they offer their students by the rather meager educational demands of the modern low-skill workplace, so should the college education of high school teachers not be limited to what they need as preparation for their future workplace—the high school.

It is important that teacher educators have a clear sense of what it means to be educated—and impart the skills, understandings, and dispositions of educated people to high school and college students, regardless of what jobs they might take in the future. It is not the general studies component, but the professional component of their training, that is justified by the specific needs of the occupation.

The Holmes report responsibly framed the notion of a liberal education in three ways:

1. Liberal education is understandable primarily as a historical notion. By drawing attention to "the historic tenets of liberal education" (p. 47), the report indicated that it is difficult, if not impossible, to describe the idea of being well educated apart from the history of that idea.

2. Liberal education may be defined in part by reference to the subject matter and modes of inquiry that make up the various disciplines of knowledge.

3. Study in the academic disciplines, as embodied in courses in this or that subject, is itself an inadequate description of liberal education. Some attention is necessary to the qualities of mind and engagement in learning that characterize a liberal education.

To extend the Holmes Group's position, then, the response to "Who is a well educated teacher?" is the same as to "Who is a well educated person?" These questions have never been settled definitively by any generation. Whether educators choose to or not, however, they articulate their answers in large part by what they provide students in the name of a college education. Whatever they determine as characteristics of a well educated person, potential teachers should be that and no less; not because they are teachers of this or that subject, but because they are persons deserving of the best possible education colleges are able to provide.

Teachers-to-be should also be professionally prepared in their specialties and in the art of educating, but these are most centrally concerns of professional education, rather than of liberal education. Where the depth component of a liberal education—an academic major—overlaps with the disciplinary specialty of the teacher (e.g., with math or English), it becomes evident how professional and liberal education can be integrated. The academic major serves the subject matter specialty of the teacher.

The founders of the University of Illinois, for example, embraced such thinking when they wrote that "thoroughly educated agriculturists" should "stand as the peers of educated men found in other professions" (Urbana Senate Committee on Educational Policy, 1987, p. 2). They did not argue that such education would make better agriculturists, although they undoubtedly believed this to be the case; rather, they argued that becoming educated demanded such study across a range of disciplines. Again, a caution is needed: Study in the disciplines of knowledge is no guarantee of an education. If experienced as dry, mechanical course requirements, processes of study in the disciplines could well stultify students' intellectual curiosity and stunt their capacities. The liberal arts colleges of our universities cannot be unquestioningly trusted to deliver the best in a liberal education; nor, as King (1987) has argued, are liberal arts faculty particularly trustful of teacher education faculty.

Vocational teacher educators must have a greater role in making liberal arts and sciences faculty more conscious of what a good education requires in terms of the processes, and not just the subject matter, of study and intellectual engagement. A good general education should actively engage students in learning, make learning challenging to inadequately informed assumptions, and provide genuinely new ways of understanding and experiencing the world. Too often, however, undergraduate majors are so extensive and tightly structured that students have little opportunity to take courses in other areas and thereby to develop the intellectual abilities and types of understanding such courses might promote. Undergraduate education has neither breadth nor depth outside of the single area in which students have chosen to specialize (Boyer, 1987).

Currently being discussed by the University of Urbana-Champaign Senate is a proposal for revising undergraduate education throughout the campus (Urbana Senate Committee on Educational Policy, 1987). A major portion of the report seeks to articulate the nature of a desirable general education curriculum by listing the various kinds of understanding and intellectual capacities that college students should be reasonably expected to develop. In summary, they are listed on the following page:

1. The ability to reason well—to analyze, criticize, interpret, and argue soundly;
2. The ability to read, write, and speak effectively in diverse contexts;
3. The ability to employ mathematics effectively;
4. The ability to use computers competently in one's academic area;
5. The ability to comprehend writing and speech in at least one foreign language;
6. Knowledge of the nature of scientific inquiry;
7. Knowledge of the nature and uses of contemporary technology;
8. Knowledge of the history and culture of our Western civilization;
9. Knowledge of the histories and cultures of nonWestern societies in general, and at least one Anglo-European society in particular;
10. Knowledge of literature and the arts;
11. Knowledge of economic systems and commercial life, nationally and globally;
12. Knowledge of social and behavioral sciences and their applications (Urbana Senate Committee on Education Policy, 1987, p. 3).

At first glance, this list might look somewhat arbitrary. Anyone, it seems, might develop a competing list of education desiderata. However, the cross-campus faculty-student body that developed this listing found that its work resulted in content compatible with efforts of other higher education institutions to ensure a general education for their undergraduates. All such efforts tend to reflect the ways in which human experience tends to be studied in historically disciplined ways: in science and math, in social sciences, and in arts and humanities. This list is representative of an institutional approach to giving greater clarity to the notion of *general education.*

Academic Majors for Vocational Teachers

If vocational educators cannot passively trust liberal arts programs to deliver a strong liberal education, still less can they assume that such programs will offer academic majors appropriate to the vocational teacher. Part of the reason for this is that professional schools in our universities—in business, for example—often construct academic majors that leave their graduates little room for a strong general education, and vocational education students should not be limited by such narrow aims. On the other hand, if these students enroll in academic majors that are watered down versions of the prevailing majors, they will risk second-class status in those curricula and in their profession.

Given those risks, why should vocational education students be required to major in disciplines outside the college of education? In part, the answer lies in the depth component of the liberal education argument. An education that provides only breadth, without significant concentration in a special disciplinary area, runs the risk of being shallow and superficial. It is important for all students to engage in disciplined study of at least one knowledge domain if they are to gain an understanding of how knowledge is generated, how it is criticized, and how it is subject to revision. In addition to the liberal education argument, however, is the view that professionals are expected to know their subject areas deeply—and vocational educators are no exception. But while it is clear that the appropriate subject matter major for a mathematics teacher is mathematics, it is not always clear what constitutes the best subject matter specialization for vocational educators. In the new paradigm of vocational education, where vocational educators are expected to be able to use a range of vocational experiences to stimulate intellectual development, what the major shall be appears to be a problem.

Just as for other secondary education teacher candidates, the answer is suggested by the area of the student's teaching specialization. Students in business education can be offered a cross-disciplinary business major that is neither watered down nor superficial. Students in industrial education can avail themselves of exciting programs emerging under the name of Science, Technology, and Society. Those in agricultural education also have logical choices, as do those in home economics education. At their best, these disciplinary specialties challenge students in ways that demand a standard of performance that equals any teaching and learning done in a university.

The Holmes agenda called for colleges of education to engage academic departments in the arts and sciences to establish cooperative programs that will provide vocational students with in-depth preparation in their chosen fields. One important area to explore in this regard is the possibility of vocational education students developing important minor fields of concentration in addition to the major. For some students, the minor can add to their expertise in vocational education. Others may want to develop an academic minor that allows them certification in a teaching subject such as math or social studies. Extended programs of teacher education make such flexibility more possible.

Professional Education

In the emerging paradigm that Pratzner (1985) and others have suggested, the professional education component of teacher certification programs sets the teacher education candidate apart from all other students in the arts and sciences. The three major elements of professional education are

- foundational studies;
- teaching methods, with increased emphasis on instructional strategies for diverse populations; and
- field experiences in schools and occupational settings.

These three elements can be integrated, but they should not be integrated at the expense of adequate preparation in any one area.

The foundational areas most traditionally offered are (a) psychological foundations, with an emphasis on learning theory; and (b) social foundations of education, which seek to engage students in the cross-disciplinary study of relations among schooling, society, and education. Social foundations bring historical, philosophical, and sociological perspectives to bear on educational and social ideals, processes, and institutions; and students are encouraged to think critically about whose interests schools have served best and least.

In addition to study in these areas that are shared with other teacher education candidates, vocational education students should have the opportunity to go beyond what other students learn by taking advantage of substantial critical analyses of the workplace and of the relations between schooling and the world of work. This scholarship has been growing in the past two decades. Not only could all vocational teacher candidates benefit from such courses, but secondary school vocational education programs might consider offering

scaled down versions for high school students. Such courses would be consistent with the aims of the new paradigm for vocational education.

Such a course at the college level might be called the Foundations of Vocational Education and would most properly be taught by vocational education faculty—or by vocational education faculty and foundations faculty together. More than any other educators, vocational educators should be familiar with the work of Carnoy and Levin (1985), Wirth (1987), Levin and Rumberger (1983a, 1983b), and others who have criticized the organization of work and its effects on workers. Further, vocational educators should be familiar with the counterarguments to those critical positions.

A related body of work appropriate for such a vocational foundations course, represented by Grubb and Lazerson (1975, 1982); Grasso and Shea (1979); Karabel (1972); and Pincus (1980), has criticized the broken promises of vocational education traditions that have not given students a clear advantage in the world of work but instead have contributed to their accepting workplace inequities. These critical approaches can raise questions of worker alienation, dead-end jobs, and workplace authority in ways that equip vocational educators to think critically about their own enterprise and to keep the interests of their students foremost.

Vocational educators should be more expert than other teachers in such vocational studies, and this expertise can be supplemented by courses in sociology, labor and industrial relations, history, and other disciplines that address the nature of work and the workplace in modern society. Such course work could be part of either the students' general education, major or minor specialization, or professional teacher preparation. It could form the nucleus of a truly valuable content specialty for vocational education teachers, and may or may not be considered part of the professional preparation component.

Method: Teaching Through Vocations

In 1916 when Dewey wrote, "The only training *for* occupations is training *through* occupations" (1966, p. 310), he was advocating an educational approach that was not then, nor is now, well accepted or understood by teachers or teacher educators. Like many vocational training programs today, the vocational education Dewey described would be activity centered and project centered rather than book centered. Also, it would be based on activities and projects related to actual occupations, both contemporary and historical. Unlike many vocational programs today, however, the method Dewey promoted had as its primary objective not the preparation for a particular occupation or even a specific range of occupations, but rather "intellectual and moral growth" (Dewey, 1966, p. 310).

It appears clear that the changing nature of the workplace makes it very risky to train students for specific jobs when those jobs may not exist in the near future, and most vocational educators recognize this fact. More difficult to articulate is a pedagogical method that uses vocational activities as a means to educate students in the kinds of intellectual skills and capacities that will give those students maximum flexibility upon completion of high school. If students are educated through vocations rather than for them, they will be able to

choose to attend either two-year or four-year colleges, enter the military, pursue job-specific training, or enter the working world. All these choices require developing good communications and interpersonal skills and the intellectual abilities characteristic of an educated person. As Weisberg noted, "We know that general literacy skills are more likely than any other factor to yield success in the labor market" (1983, p. 359).

The value of using vocations as a means to achieve such educational ends lies primarily in the interest value of vocational activities and projects. Hands-on problem solving can be a powerful motivator to students alienated from conventional academic classroom teaching methods. This is partly why, in *Democracy and Education,* Dewey saw such pedagogical potential for intellectual development in school shops and laboratories (1966, p. 162). It is noteworthy that teachers in academic classrooms have much to learn themselves about motivating students through activity centered teaching, and vocational educators have the opportunity to provide genuine leadership in this regard. Further, vocational educators who find ways to make intellectual development more interesting through occupation-based projects and activities may well attract a broader student clientele than they are accustomed to, for such vocational courses will not be aimed primarily at preparation for jobs that many students had already eliminated from among their choices.

A Proposed Technology Teacher Education Program

A proposed experimental program[2] in Technology Teacher Education now being considered at the University of Illinois, Champaign-Urbana, consists of six major components: general education, technology sequence (major), minor, professional education sequence, clinical experiences, and university coordinated experiences. This program proposal is described here to illustrate a model that can be applied to business education, agricultural education, and other specialties—as well as to technology education. Our use of this model should not be construed as an unqualified endorsement; the general education requirement, for example, might be strengthened still further. However, this model, developed by colleagues at the University of Illinois clearly moves in the direction recommended in this chapter. The contents of the six components are not discrete, but are designed to integrate liberal arts, teaching specialization (technology studies), and professional education. The model program is illustrated in Figure 2. A description of each of the program components follows.

Component 1. General Education

The general education component is designed to serve three objectives. First, this component will provide the student with a strong, liberal arts background. The general education requirements proposed in this program will increase to 52-55 semester hours from the current level of 30-36 semester hours. Second, the general education courses were selected to provide the student with a solid foundation for the remainder of the program. To achieve this goal, the recommended courses were selected to provide the student with the conceptual knowledge needed to understand and teach technology. Third, the general education component was developed to meet or exceed the State of Illinois teacher

certification requirements. The general education component of the program is prescribed in detail, with few electives. This level of specificity is proposed because general education should not become a collection of courses that students select in cafeteria style. Each recommended course in this component was selected because it contributes to the development of the interdisciplinary general education base needed to become a well educated individual.

Component 2. Technology Sequence

The technology sequence comprises the course work for the major. This component is divided into three primary sections: technological literacy, technology specialization, and technology synthesis.

Technological Literacy. The course work in technological literacy is designed to build upon the broad, conceptual knowledge gained through the general education component. Four courses have been planned that will lead to the development and understanding of technological literacy. These new courses include Introduction to Technology, Technological Systems, Technological Assessment, and Technological Development.

Technology Specialization. The second section of the technology sequence component is the technology specialization. The technology specialization section will include 24 hours of approved advanced course work in one or more of the following areas: architecture/construction technology, electronics technology, engineering technology, communication technology, transportation technology, manufacturing technology, industrial technology, design technology, and industrial research and development. The specific courses for the technology specialization are not prescribed because technology is expanding so rapidly. As technology changes, so will the sequence of courses change in the specialization.

Technology Synthesis. The final section in this sequence is technology synthesis. This course is designed to be the culminating experience for students. Based on the prior knowledge developed through the entire technology teacher education program, students will participate in the study of technology through research and development, technological invention, and/or technological enterprise.

Component 3. Contributory Minor

All students will be required to select a minor that contributes to the technology sequence major. Approved minors will include math, computer science, social studies, science (i.e., general science, earth science, physical science, biology, chemistry, and physics) and instructional applications of computers.

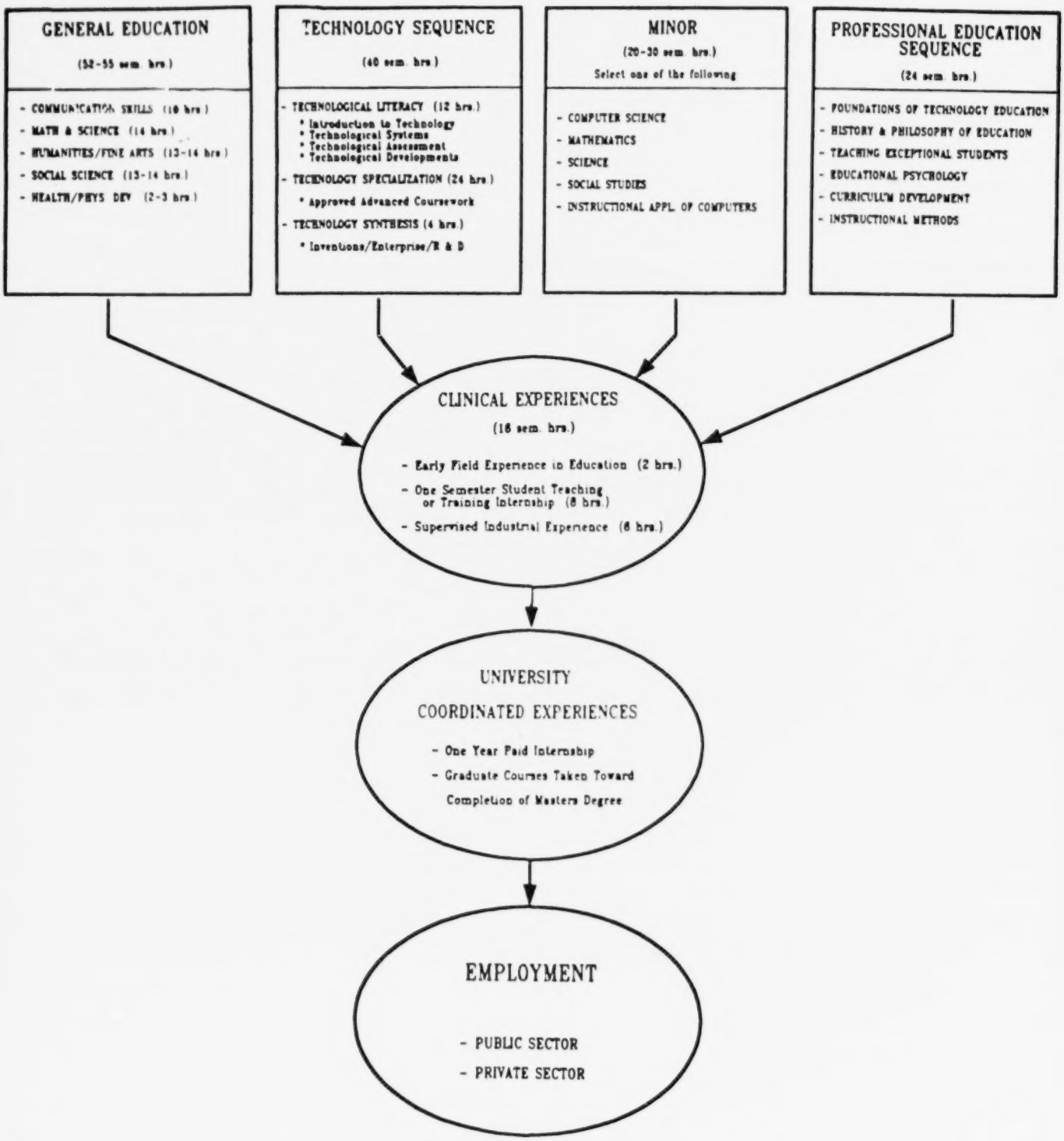

Figure 2. Technology Teacher Preparation

Component 4. Professional Education Sequence

The professional education sequence is in the process of being redesigned as a departmental initiative. Currently, the sequence includes courses in foundations, curriculum, teaching methods, and special needs.

Partnerships with Schools. The professional education sequence will not only include new emphases, but it will be delivered through new relationships between the universities and schools. The Department of Vocational and Technical Education will be initiating a University Education for Employment (EFE) regional system partnership. Such partnerships will allow for the involvement of high school master teachers and university faculty and teacher education students to be involved in program transition as local schools revise traditional industrial arts programs to reflect technology education. The focus of the curriculum course will be the development of a technology education program at a specific school in the partnership.

Component 5. Clinical Experiences

Three sets of clinical experiences are planned in the technology teacher education program. Developing partnerships between the University and public and private institutions will design coordinated clinical experiences. Students will be involved in a minimum of 100 hours of early field experience, which will allow them to gain experience in the educational environment. Students will also have a one semester, intensive student teaching experience in either the public schools or in the private sector.

Each student will also be required to complete twelve semester hours of supervised industrial experience. Cooperative arrangements will be established between the Department of Vocational and Technical Education and selected technological work sites. These paid industrial experiences will generally be completed by students during the summer.

Component 6. University Coordinated Experiences

The final component of the technology teacher education program consists of university-coordinated professional experiences. Through the EFE regional system partnerships, students in the technology teacher education program will be offered one year paid teaching internships in the local schools. These internships will be coordinated by university faculty and supervised by trained professionals within the schools. It is expected that the new technology teacher will have previously received a baccalaureate degree and will have the opportunity during the internship to complete graduate courses toward the master's degree. At this time it is unclear when the teaching certificate will be awarded. The teaching certificate will likely be awarded before the university coordinated experiences begin, although it could possibly not be awarded until the student successfully completes the one year internship.

Laboratory Needs

The renewed effort in industrial arts education to emphasize technology education will not only change the approach to preparing teachers, but it will also demand changes in laboratory organization and use for research, teaching, and service. A program in technology teacher education must teach students technology—not just teach them about technology.

The technology education lab at the University of Illinois will not be used to teach specific technical skills. Technical skills development courses will be brokered to other departments on campus (e.g., courses in engineering graphics, materials and processes, construction, and communications taught in agriculture, engineering, and aviation departments). The laboratory needed for the technology teacher education program is one that provides flexibility and the opportunity for a synthesis of technology related experiences.

In effect, the laboratory should be similar to an applied engineering research and development laboratory. Thus, equipment needs will vary according to the courses taught in the lab and the research being conducted. In many instances technology education programs effectively utilize equipment that simulates various technologies. This equipment, usually much smaller and slightly less complex than the actual equipment, is often called table-top technology. The use of table-top technology greatly reduces the costs for lab equipment and allows the flexibility required to adjust with technological changes and research needs.

Purposes for the Lab. The technology education laboratory will be used for three major program purposes: research, teaching, and service.

The research program will include areas such as how best to teach technology and technical knowledge/skills in laboratory settings, effectiveness of new technology-based instructional equipment (table-top technology in particular), new instructional technologies such as computer-based training, research on technological literacy, and how people learn technical skills.

The teaching program will include courses in the technology literacy sequence and the senior level technology synthesis course. The professional education sequence courses will include technology-based methods courses and will be delivered in concert with the intent of the Holmes Group's proposal (1986) that recommended generic methods courses be replaced with subject matter-oriented studies of teaching and learning.

The service program will include graduate level inservice courses that emphasize the shift to the technology education curriculum and demonstrate how to transform a traditional industrial arts laboratory into a technology laboratory.

Degree

The experimental program in technology teacher education will lead to a Bachelor of Science degree after 130 semester hours. Arrangements may be made to have the B.S. degree become interdisciplinary with arts & sciences. However, for research purposes, it may be best to initiate the program as a revision of the B.S. degree in Occupational and Practical Arts Education. Teacher certification would come after completion of the total program.

Summary

The notion of teaching for vocations needs to be reexamined in light of current changes in the workplace as well as in teacher education. The skills students will need to be productive in the workplace are becoming more complex for skilled occupations, while the majority of entry-level positions for high school leavers require minimum job-specific skills.

These changes require a new type of secondary school vocational educator—a person who can provide instruction *through* vocations and not merely *for* vocations. A broad understanding of the world of work, as well as the ability to use generalizable skills, math, reasoning, and communication may be the best vocational preparation for the majority of vocational students at the high school level.

Notes

[1]This chapter is based on a presentation given at the Ninth Annual Rupert N. Evans Symposium on Vocational Education, Allerton House, Monticello, Illinois, April, 1988.

[2]This section is based on a proposal entitled "An Experimental Program in Technology Teacher Education" prepared by Dr. Scott D. Johnson and Dr. Thomas L. Erekson, Department of Vocational and Technical Education, University of Illinois, Urbana-Champaign.

References

Adams, D. W., Pratzner, F. C., Anderson, B. H., & Zimmerer, M. E. (1987). Vocational teacher education in an era of change. *Vocational Education Journal, 62* (4), 25-27.

American Society for Training and Development. (1986). *Servicing the new corporation.* Alexandria, VA: Author.

America's competitive challenge: The need for a national response. (1983, April). A Report to the President of the United States. Washington, DC: Business-Higher Education Forum.

Boyer, E. L. (1987). *College: The undergraduate experience in America.* New York: Harper and Row.

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century.* (Report of the Task Force on Teaching as a Profession). New York: Carnegie Corporation.

Carnoy, M. (1987). High technology and education: An economist's view. In K. D. Benne & S. Tozer (Eds.), *Society as educator in an age of transition* (pp. 88-111). Chicago: National Society for the Study of Education.

Carnoy, M., & Levin, H. M. (1985). *Schooling and work in the democratic state.* Stanford, CA: Stanford University Press.

Dewey, J. (1966). Vocational aspects of education. In *Democracy and education* (pp. 306-320). New York: Free Press. (Original work published 1916)

Grasso, J., & Shea, J. (1979). *Vocational education and training: Impact on youth.* Berkeley, CA: Carnegie Council on Policy Studies in Higher Education.

Grubb, W. N., & Lazerson, M. (1982). *Broken promises: How Americans fail their children.* New York: Basic Books.

Grubb, W. N., & Lazerson, M. (1975). Rally 'round the workplace: Continuities and fallacies in career education. *Harvard Educational Review, 45* (4), 451-474.

Holmes Group. (1986). *Tomorrow's teachers.* East Lansing, MI: Author.

Johnston, W., & Packer, A. (1987). *Workforce 2000.* Indianapolis, IN: Hudson Institute.

Karabel, J. (1972). Community colleges and social stratification. *Harvard Educational Review, 42* (4), 521-562.

King, J. A. (1987). The uneasy relationship between teacher education and the liberal arts and sciences. *Journal of Teacher Education, 38* (1), 6-10.

Levin, H. M., & Rumberger, R. (1983a). *The educational implications of high technology.* (IFG Project Report 83-A4). Stanford, CA: Institute for Research on Educational Finance and Governance.

Levin, H. M., & Rumberger, R. (1983b). Low skill future of high tech. *Technology Review, 86* (6), 18-21.

Margonis, F. (in press). What is the meaning of contemporary educational nationalism? In J. M. Giarelli (Ed.). *Philosophy of education.* Normal, IL: Philosophy of Education Society.

Mohrman, A. M., & Lawler, E. E. (1981). *The diffusion of QWL as a paradigm shift.* Center for Effective Organization, Graduate School of Business Administration, University of Southern California.

National Commission for Excellence in Teacher Education. (1985). *A call for change in teacher education.* Washington, DC: American Association of Colleges for Teacher Education.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC: U. S. Government Printing Office.

Pincus, F. (1980). The false promises of community colleges: Class conflict and vocational education. *Harvard Educational Review, 50* (3), 332-361.

Pratzner, F. C. (1985). The vocational education paradigm: Adjustment, replacement, or extinction. *Journal of Industrial Teacher Education, 22* (2), 6-19.

Raywid, M. A., Tesconi, C., & Warren, D. (1986). *Pride and promise: Schools of excellence for all the people.* Burlington, VT: American Educational Studies Association.

Riche, M. F. (1988, February). America's new workers. *American Demographics, 9* (5), 34-41.

Rumberger, R. W., & Levin, H. M. (1984). *Forecasting the impact of new technologies on the future job market.* Stanford, CA: Stanford University, Institute for Research on Educational Finance and Governance.

Santos, G. (Ed.). (1987, May). Preparing vocational teachers: New challenges [Special issue on vocational teacher education]. *Vocational Education Journal, 62* (4).

Urbana Senate Committee on Education Policy. (1987). *The QUE report: Enhancing the quality of undergraduate education at the University of Illinois, Urbana-Champaign.* (Report of the Ad Hoc Committee on Improving the Quality of Undergraduate Education) Urbana: University of Illinois.

Weisberg, A. (1983). What research has to say about vocational education in the high schools. *Phi Delta Kappan, 64* (5), 355-59.

Wirth, A. G. (1987). Contemporary work and the quality of life. In K. E. Benne & S. Tozer (Eds.), *Society as educator in an age of transition* (pp. 54-87). Chicago: National Society for the Study of Education.

Steve Tozer, Ph.D., is an assistant professor, Philosophy of Education, and co-chair, Task Force on Teacher Education, College of Education, Department of Educational Policy Studies, College of Education, University of Illinois, Urbana-Champaign.

Robert E. Nelson, Ph.D., is an associate professor and chair, Division of Business Education, College of Education, University of Illinois, Urbana-Champaign.

Considerations for Vocational Teacher Education Reform

Roger Luft, Mary E. Zimmerer, and Lydia Z. Kercher

Reform in education has become an issue that has stirred debate across the nation, focusing attention on teacher education programs. Reform in education has not left vocational teacher education untouched. Many states have lengthened teacher education programs; in some states, reform has been mandated. In light of the reform debate, Adams, Pratzner, Anderson, and Zimmerer (1987), in reviewing the current status of vocational teacher education in the United States, concluded that its success depends upon the capacity of vocational teacher education to assess the demands of a changing society. Vocational teacher education must use that information to tailor its mission with respect to personnel, research, in-service education, and education services. Adams et al. went on to say that teacher education activities may be in jeopardy because of numerous factors including such things as declining financial support, declining enrollments, and outdated curriculum. In addition, the currency and content of vocational curriculum have recently come under fire in a preliminary report from the National Assessment of Vocational Education (Walker, 1988, p. 16).

Crain (1987) viewed reform groups such as the Holmes Group as stimuli to elicit discussion and generate ideas to improve education. She pointed out that the Holmes Group admitted that educational areas such as vocational education need further study before decisions are made.

Traditional Model

The prevailing model for teacher education in this country has remained relatively constant for over fifty years. Scannell (1986) reported:

> The typical four-year baccalaureate program provides that two years be devoted primarily to general education and two years be split between course work in the field to be taught and professional education-pedagogy. This model has prevailed for more years than has any other in the revolution of teacher education and longer than the models found in virtually all other fields of professional preparation. (p. 17)

The traditional four-year teacher education model was illustrated by the American Association of Colleges for Teacher Education (1983), with a paradigm that showed one and one-half years of general education, the same amount of time for teaching-field(s) content courses and the remainder of the time with professional studies and clinical experiences.

Vocational teacher educators are currently addressing the program changes that move away from the traditional model described by Scannell. The literature is replete with arguments for and against specific models considered in teacher educational reform. Many states and universities have already made decisions, voluntary or through external mandates, to extend the typical four-year model.

According to Ryan (1988), educators must be constantly aware of the changing demographics that impact the appropriateness of teacher education course content. Unless preservice and inservice teacher education programs keep pace with the educational requirements of society, teacher preparation programs will be ineffective. This is apparent in vocational teacher education where the demographics of vocational students include a larger proportion with special needs, including learning disabilities and language barriers. Adult training and retraining responsibilities in a rapidly changing world of technology also create the constant need for program change. It is little wonder that the traditional teacher education program patterned to meet the needs of the 1940s is deemed ineffective.

Because extensive analysis and pilot studies need to accompany program modification, a review of literature relative to existing models must precede program revision. The remainder of this chapter analyzes several existing teacher education models that impact vocational education and data compiled from a recent survey of educational programs throughout the country.

Extended-Time Models

The American Association of Colleges for Teacher Education (1983) provided early descriptions of typical extended-time teacher education models. They include

Four-Plus-One (BA). This model is a four-year BA program extended an additional year to afford an opportunity for professional studies and a practicum or internship. The program culminates with a baccalaureate degree.

Four-Plus-One (internship). The first four years are similar to those in a traditional teacher education program with an extended year that involves an internship with more extensive professional practice. The program does culminate in a baccalaureate degree.

Five-Year (BA plus master's degree). During the first four years leading to a baccalaureate degree, students take general education courses, teaching field(s) content courses, preprofessional courses, and professional studies. In the fifth year master's degree, students take additional professional studies courses and complete a clinical component. This model allows for more professional knowledge in the program. The clinical experience strengthens the working relationship between higher education and K-12 schools.

Five-Plus-One-Year (Master's degree plus internship). Similar to the five-year model, this program allows for an increased professional education component and requires a longer clinical experience.

Four-Plus-Two-Years. This model allows for schools, colleges, and departments of education to function as professional schools since admission is exclusive to those holding collegiate degrees. The two years of the program allow for professional studies and clinical experiences.

Other models discussed by AACTE do not seem appropriate for most vocational teacher education programs since they lead directly to doctorates. An example is a Three-Plus-Three program culminating in a doctorate. Most vocational teacher educators feel that a combination of teaching and business-industry work experience is important to the preparation of professional vocational educators. Programs like the Three-Plus-Three will not allow for this combination of experiences.

Discussion of Extended-Time Models

Surrounding extended year teacher education models are many pros and cons that surface repeatedly. Scannell (1986) pointed out that when considering extended programs to prepare secondary teachers, the decision depends on the role assigned to the secondary schools where teacher education graduates are employed. If the role is college preparatory, or a series of alternative programs with homogeneous grouping, it is difficult to make a case for extended year teacher education programs. If the role is to prepare people for life, as well as for further education, as in comprehensive high schools, then extended teacher education programs are important.

Economic Concerns. Hawley (1986) argued that there are two risks in requiring all teacher education candidates to complete extended programs: student costs and program costs. The cost of becoming a teacher would increase and, without significant improvements in teacher compensation and working conditions, the quality and quantity of candidates in the applicant pool could decline. Also, the costs of implementing extended programs could deny resources to other more productive educational reforms.

Cyphert and Ryan (1984) also raised economic issues in questioning if the added expense to support the extra training would attract "better qualified teaching candidates" (p. 65). The criticism now is with the quality of teaching, and it is undetermined as to whether extended programs would improve the quality if candidates cannot be attracted. The same authors conducted research in Ohio to determine the viewpoints of preservice teacher education students as well as practicing teachers. They found that with both populations, 60 percent would enter the teaching profession if programs were extended to five years, but 90 percent would become teachers if the training culminated in a master's degree. In both cases, the majority of the respondents preferred a four-year program with fewer associated costs than required in the traditional model.

Howey and Zimpher (1986) stated that, from an institutional viewpoint, the cost and benefit considerations are attached to the baccalaureate versus postbaccalaureate debate. The assumption is that postbaccalaureate education would bring in more revenue and is supported with more state dollars than are baccalaureate options. They warned, however, that the costs and benefits of protracted training are simply not clear.

Liberal Education. Webb and Sherman (1983) discussed the notion of a liberal education. They distinguished a liberal education from a technical or vocational education to the degree that it serves both the aims of socialization and critical thinking. Their example explained how engineers and scientists who learn only facts and methods and who do not understand the theories and frameworks of their profession have not received a liberal education. They are technicians and as such are captives of their methodology. The point is that colleges of education should offer programs that provide a liberal education, including developing critical thinking skills as applied to a profession. Vocational education should be liberating. Webb and Sherman (1983) elaborated that many teacher education students get large doses of theory and insufficient practice with theoretical teaching methods.

In line with the concerns of many vocational educators about the recommendations of the Holmes Group, Barr (1987) postulated that vocational education does not necessarily fit the pattern of an arts and sciences degree espoused by the Holmes Group. He stated that, although it is becoming more widely recognized that teachers should hold an academic baccalaureate degree prior to becoming certified, there are areas, such as elementary education, business education, and industrial education, that pose specific problems. A liberal education, including critical thinking and problem solving within vocational education, however, is not an issue.

Teacher Education Students. The question arises as to what will happen to the student base if and when programs are extended. This issue in relationship to vocational teacher education programs has rarely been addressed. Worms (1987) discussed Memphis State University's approach to teacher education with a program that was initiated in 1984 with fifteen students and had seventy-five students in 1987. Available to vocational students in business, marketing, and home economics education, the five-year program culminates with a master's degree.

Andrew (1983) claimed that characteristics of students in the University of New Hampshire's (UNH) five-year teacher education program represent a group academically far superior to prospective teachers described in national reports. He said that the students are also better than average senior students at the UNH, and they are comparable to all graduate students at the institution. It is interesting to note that an alternative program exists, which allows students in home economics and occupational education, along with other educational disciplines, to participate in a four-year degree program. Andrew revealed that many students choosing to enter the five-year program do so because of a social service motivation: Teaching involves helping others.

The same kind of glowing reports come from the University of Kansas' fifth-year teacher education program. Scannell (1984) said that data on the student body in the program suggest students are better academically as measured by ACT scores than are their counterparts in four-year programs.

In the PROTEACH (professional teacher) five-year program implemented at the University of Florida in 1984, faculty reported that the quality of students is excellent. According to data reported by the faculty at the University of Florida, 580 students are in the PROTEACH program, 180 of whom are in secondary education (as cited by Rutgers University, 1987).

Program Content. With changes in secondary education's requirements and the lengthening of teacher education programs, changes in content should occur. Program content seems to be based on the type of extended program adopted. A five-year baccalaureate would have different content than the professional component of a fifth-year master's degree, or so it seems. The research conducted by Rutgers University (1987) provided current data on program content applicable to vocational education, including programs at the University of Florida, the University of Kansas, the University of Virginia, and the University of New Hampshire. A discussion of Rutgers' research follows.

In the PROTEACH program at the University of Florida, students must complete sixty-four semester hours in a general education component. Secondary majors must complete a baccalaureate degree in an appropriate field of arts and sciences. All students are required to take thirteen semester hours of educational foundations, and secondary teaching majors must complete a two semester-hour course on the problems and issues of secondary education. In addition, four elective courses are suggested. During the fifth year, students take courses in general methods, special subject methods, and secondary school curriculum. They also take courses in their subject area and complete a supervised field experience and student teaching.

Students in the University of Kansas five-year program take 60 hours of general education, 40-48 hours in their teaching field, 54-62 hours of professional education courses of which 29-32 hours are in the first four years and 25-33 hours are in the fifth year. Fifteen hours of the fifth year course work are for graduate credit. Clinical experiences begin in the freshman year, and the fifth year begins with six weeks of student teaching. In the spring semester of the fifth year, students complete a full-semester internship.

The University of Virginia implemented a five-year baccalaureate/master's degree program during 1986-87. When students complete the requirements, they simultaneously receive a baccalaureate degree in arts and science, a master's degree in education, and certification. Therefore, the baccalaureate degree coursework is not completed until the fifth year. Clinical experiences begin in the sophomore year, and student teaching is completed in the fall of the fifth year.

In the University of New Hampshire program, where education is a department in the College of Liberal Arts, students complete the required general education for a liberal arts graduate. Professional education courses are divided into three phases.

Phase I. Called **Exploring Teaching**, this phase requires freshmen and sophomore students to spend a minimum of 65 hours in schools and attend weekly seminars.

Phase II. This phase requires four credits to be completed in each of four areas of educational study available in a mini-course format.

Phase III. This phase is year long with a postbaccalaureate internship and graduate study.

Other programs could be cited that further reflect the general pattern developed in existing programs that places heavy emphasis on general education and increased clinical experiences including student teaching. Program content is not addressed in the literature relating to vocational education. There is an apparent need to determine how and if work experience in business and industry will fit into expanded programs, as well as a need to look at the balance of general education requirements with occupationally specific content courses.

Program Planning. Egbert (1985) discussed the origin of some of the previously mentioned extended programs. He pointed out that one key factor—extensive planning—preceded the introduction of the programs, and planning processes involved teacher educators, teachers, administrators, students, and lay people.

Tucker and Mautz (1984) revealed that when planning does not occur, the proportion of students' time in courses outside of education and courses in education is a product of wars over turf, rather than rational decisions based on research and planning. Often state departments of education come to the support of colleges of education, again recommending requirements not substantiated by research and sound planning.

Webb and Sherman (1983) stipulated that determination of the length of teacher education programs should be the consequence of reflection on the elements of an adequate program. After the mission and goals of teacher education are critically determined, offerings should be developed to meet those criteria. The authors stated, however, that many advocates of extended teacher education programs seem to first decide that more time is needed, then decide how to fill that time with subject matter.

Alternative Teacher Education Models

Corbin (1985) stated that the training environment of the university campus is so far divorced from the reality of the public school classroom, it is little wonder that so many first year teachers become disillusioned and leave the profession. He believed that students should not start professional education courses until the baccalaureate degree is completed. The professional program can then begin in teacher institutes or in professional development schools sponsored by the state. In his scheme, universities would be relegated to consulting and specialized services when needed.

In Texas the movement is toward allowing baccalaureate degree holders to begin teaching without fulfilling education course requirements. In California, legislation prodded by the state superintendent of public instruction allows emergency certification of teachers without education courses (Keisling, 1984). New Jersey has an alternate program, which does require education courses. This alternative path, proposed by as many as eight states, bypasses teacher preparation and, as Tetenbaum and Mulkeen (1986) argued, "jeopardizes the future of teacher education programs" (p. 622). More importantly, it "open[s] the back door to individuals who are unprepared to teach and thereby expose[s] children to less than qualified, certified people" (Tetenbaum & Mulkeen, 1986, p. 622). Vermont is promoting a program that gives prospective teachers an opportunity to demonstrate competence before a panel of experts. If successful, they may begin teaching. In New York, a decision was made to waive the education courses for new secondary teachers, but those courses would be part of the responsibilities assumed during the first two years of teaching. There was a flood of applicants (Keisling, 1984).

Suggestions for the Future

Because the reform movement grew out of the belief that colleges of education are currently using a program model developed to meet the needs of society fifty years ago, it is essential to identify current and future societal requirements. Tafel cited Kaufman,

> Futurism questions traditional education on two grounds. First, traditional methods of education tend to produce individuals who are psychologically ill-equipped to cope with a society undergoing continual rapid change. Second, the content of the traditional curriculum is designed to fit the student into the existing society, in spite of the fact that the society--more accurately the succession of societies--which the student will live in will be quite different--a case of trying to hit a moving target by aiming at it where it is now, rather than where it will be. (1984, p. 6)

In an effort to ensure that education majors and teachers have a broad knowledge base in general education as well as in the content area(s) in which they will teach, planners must consider the logistics of merely covering the materials to be addressed. The traditional time span of four years is insufficient to convert into teachable elements the major skills, attitudes, knowledge, and values necessary to assimilate both general education and content-specific knowledge. Of utmost importance then is developing attitudes about education that promote anticipation of the changing needs of society, of new discoveries and extensions of the knowledge base, and of the need for lifelong learning in a rapidly changing society. Tafel, a futurist, stated,

> Futures researchers agree on the need to examine educational institutions and programs and to plan and implement change. Of primary importance must be the preparation of educational professionals who anticipate a wider context for the application of skills, knowledge, attitudes, and values they have learned. (1984, p. 6)

Schuck (1984-85) warned colleges of education that they must establish a firm perspective of their place in the academic world and their professional mission. He proposed that colleges of education must (a) foster closer relationships between the theoretical and clinical components of education, (b) strive to become both centers of expertise and models of appropriate behavior with their discipline, (c) establish themselves as professional schools

in contrast to the usual arts and sciences prototype imposed upon them, and (d) expand their concept of mission beyond the boundaries of teacher education.

Armstrong, Savage, and Erion (1987) suggested, in looking at teacher education reform, the need for rigorous analysis of the content and structure of existing programs. They also suggested that before full-scale adoption of extended programs occur, alternative small-scale prototypes be developed and tested.

Cadenhead (1985) stated that the new environment for teacher education should include many opportunities for interdisciplinary study, with particular emphasis on cooperative efforts of professional educators and professors from academic disciplines. Such an effort would facilitate articulation and application of ideas and problem solving.

According to Roth (1984-85), teacher education must seek to use existing research and knowledge. Doing so should demonstrate that there is a body of knowledge in teaching that must be learned to become an effective teacher. Competence must be demonstrated and course content must have substance, which would produce quality teachers and, in turn, attract quality applicants for teacher education.

The Unfinished Agenda (The National Commission on Secondary Vocational Education, 1985) stressed that, before beginning to teach, vocational teachers have difficulty in obtaining sufficient general education, occupational specialization, professional teacher education, and occupational work experience. Some teachers are certified to teach through sufficient numbers of years of work experience, accompanied by minimal hours of formal education. Others begin teaching with baccalaureate degrees, accompanied by little or no work experience. The variety of backgrounds of individuals in the vocational teaching field challenges educational planners to provide educational opportunities. Some need more formal education, some need more practical work experience, and all need continuous opportunities to update skills and knowledge in the rapidly changing technical, information era.

Status of Vocational Education

In an effort to determine the demographics of vocational teacher education programs throughout the country, the authors of this chapter developed and circulated a survey instrument to a randomly selected group of institutions that are land grant institutions or members of the Holmes Group or NCATE (National Commission on Accreditation of Teacher Education).

One hundred and sixty-six questionnaires were mailed directly to institutional departments of admissions and records seeking information as of Fall 1987 related to (a) verification that the school had programs in agriculture education, business education, health occupations, home economics education, industrial arts/technology education, marketing education, trade and industrial education, and/or training and development; (b) the college in which each existing program was housed; (c) the undergraduate enrollment in each program; (d) the graduate enrollment in each program; (e) the name and address of

the person to contact seeking further information about each program; and finally, (f) the undergraduate and graduate enrollment in the institution. Ninety-two questionnaires were returned representing a response of fifty-five percent. Of these responses, seventy-eight listed one or more vocational programs.

In a direct mailing to 253 vocational area representatives listed in the 78 institutions, 88 representatives from 49 institutions responded with vocational area-specific data. The institutional response rate for the mailing was sixty-three percent, and the individual representative response rate was thirty-five percent. Because of the contracted timeline to meet publication deadlines, only one mailing was completed.

Upon receipt of each questionnaire, a second one entitled **Teacher Education Program Development** was mailed to each individual identified in the institutional departments of admissions and records. This questionnaire requested information about program requirements including (a) total hours required for graduation; (b) hours required in general education, pedagogy, and content; (c) required hours of practice, student teaching, and internships; (d) current education model for the program; (e) a five-year projection of program changes; and (f) a five-year projection of course changes. The Teacher Education Program Development surveys were mailed directly to the faculty member in charge. Eighty-eight of the 253 questionnaires were returned for a thirty-five percent response. Table 1 shows the responses by individual programs.

Table 1
Teacher Education Program Development Questionnaire
Responses By Program

Program	Mailed	Returned	Percentage
Agriculture education	36	14	39
Business education	46	16	35
Health occupations	35	9	26
Home economics education	46	21	46
Industrial arts/technology education	29	12	41
Marketing education	19	5	26
Trade and industrial education	28	5	18
Training and development education	14	0	0
Vocational education (general)		6	n/a

Note: Total $N = 88$

Table 2 illustrates the responses from vocational educators. The data are reported for both semester and quarter hour requirements, and for each vocational service area. It is readily apparent that there is great variability in course requirements in vocational teacher education when looking at total credits required for graduation and for each of the subcategories of courses to meet the graduation requirements. The subcategories include general education, pedagogy, content area courses, and field experiences.

Table 2
Program Data by Service Area

Category		Agricultural Education			Business Education			Health Occupations			Home Economics Education		
		n	Range	Mean	*n*	Range	Mean	*n*	Range	Mean	*n*	Range	Mean
Credit hours required													
Total Hours	qtr	3	192-198	194	5	180-204	188	2	189-204	193	3	183-196	187
Total Hours	sem	11	120-141	118	11	120-142	130	7	124-158	135	18	121-139	128
Gen Ed	qtr	3	24-72	63	4	48-90	74	1		90	3	63-67	65
Gen Ed	sem	11	6-64	42	11	16-55	40	7	44-70	52	17	30-63	45
Pedagogy	qtr	3	32-51	43	4	25-75	35	1		34	3	34-56	45
Pedagogy	sem	11	9-33	25	11	5-36	22	7	15-38	26	18	13-40	29
Content	qtr	2	64-78	71	4	65-97	85	2	65-99	82	17	66-78	73
Content	sem	10	30-66	46	11	32-85	49	7	24-52	42	17	25-65	46
Field Experiences													
Practica	qtr	2	3-10	7	1		3	1		3	1		2
Practica	sem	8	1-3	2	5	3-6	5	6	1-10	4	10	1-15	5
St Tchg	qtr	3	10-14	13	6	6-16	14	2		15	3	1-12	7
St Tchg	sem	9	1-12	11	12	9-15	13	6	1-10	6	16	8-17	11
Internship	qtr	1		30	0		0	0		0	0		
Internship	sem	2	2-2	2	3	3-6	4	2	2-12	7	4	1-3	2

Model currently in place	*n*	%	*n*	%	*n*	%	*n*	%
4-yr BA/BS in Ed	8	57	9	56	5	56	14	67
BA/BS in content area, MS in Ed	1	7	0		0		0	
5-yr BA/BS in Ed	0		1	6	0		0	
5-yr work exp/tchg area	0		0		0		0	
4-yr BA/BS in content area + educ hrs for certification	7	16	5	31	2	22	6	29
5-yr with BA/BS in content area + BA/BS in Ed	0		0		1	11	0	
Other	1	11	1	11	1	11	1	5
Total *N*	17		16		9		21	

Note: Means and percentages have been rounded to the nearest full number.

Table 2 (continued)
Program Data by Service Area

Category		Industrial Technology Education			Marketing Education			Trade and Industry Occupations			Vocational Education		
		n	Range	Mean	*n*	Range	Mean	*n*	Range	Mean	*n*	Range	Mean
Credit hours required													
Total Hours	qtr	4	186-190	187	0	180-204	188	2	44-204	123	2	192-210	201
Total Hours	sem	7	120-132	128	4	120-128	125	3	124-128	127	4	124-128	127
Gen Ed	qtr	2	64-83	74	0		0	2	50-90	70	2	65-96	81
Gen Ed	sem	7	30-52	43	4	40-45	45	3	30-45	39	4	31-50	40
Pedagogy	qtr	3	38-43	40	0		0	2	18-34	26	2	38-40	39
Pedagogy	sem	7	20-36	27	4	14-27	19	3	21-36	28	4	8-42	23
Content	qtr	4	45-76	59	0		0	1		65	2	60-76	68
Content	sem	7	24-54	43	4	41-52	43	3	45-52	51	4	20-54	44
Field Experiences													
Practica	qtr	2	2-2	2	0		0	1		5	1		2
Practica	sem	4	1-6	3	3	2-6	3	2	2-6	4	4	25-8	2
St Tchg	qtr	4	12-14	12	0		0	1	2-6	15	1		1
St Tchg	sem	7	8-12	11	4	8-12	9	3	10-12	11	4	1-12	
Internship	qtr	0		0	0	0	0	0		0			0
Internship	sem	3	2-10	7	2	3-6	5	1		3	2	1-3	2

Model currently in place	*n*	%	*n*	%	*n*	%	*n*	%
4-yr BA/BS in Ed	8	73	4	100	5	100	6	67
BA/BS in content area, MS in Ed	0		0		0		2	33
5-yr BA/BS in Ed	0		0		0		0	
5-yr work exp/tchg area	1	9	0		0		0	
4-yr BA/BS in content area + educ hrs for certification	1	9	0		0		0	
5-yr with BA/BS in content area + BA/BS in Ed	0		0		0		0	
Other	1	9	0		0		0	
Total *N*	11		4		5		8	

Note: Means and percentages have been rounded to the nearest full number.

In the question concerning practice and student teaching, respondents were asked to indicate the length of the experience, such as one semester or quarter. However, it is obvious that some respondents indicated the number of credits earned while others answered with the number of semesters or quarters in the experience.

It is interesting to note that among the vocational education units responding, the overwhelming majority are still offering programs in a four-year model. Some are making the shift to extended-year models with baccalaureate plus certification courses. These data are inconsistent with written general comments that indicate the Holmes Model (baccalaureate in a content area with a master's degree in education) would be the likely one to be followed.

Table 3 was designed to illustrate the models currently being used by respondent schools and to indicate model changes being implemented. Also shown are institutional undergraduate and graduate enrollments as reported by respondents, as well as the institutional affiliation with Holmes, NCATE, or the University Council for Vocational Education.

Some schools use more than one model to prepare vocational teachers. An example is the institution with an undergraduate enrollment of 45,060, which uses Model 1 (four-year BA/BS in education) and Model 2 (BA/BS in content area and master's in education). The larger institutions are more likely to be members of the Holmes Group; almost all responding institutions hold NCATE accreditation.

It appears that most institutions will continue to offer more than one model. Some will maintain the BS/BA degree programs in education and offer BS/BA degrees in a content area with courses in certification at the same time. Still other institutions will offer the BS/BA in education model and also offer the BS/BA in the content area and the master's degree in education.

Discussion

The comments made by the respondents to the questionnaire were as varied as the institutions and programs they represent. One theme seemed to appear within the comments, which indicated a trend in the type of offering by those institutions going to extended year programs. Respondents indicated that currently the most common extended-year degree is the baccalaureate degree followed by certification requirements.

The general comments would lead one to assume that more schools that are considering extended-year options are moving in the direction of a baccalaureate degree in a content area with a master's degree in education. Several institutions indicated that they have made, or areplanning to make, major revisions in curriculum. Some revisions increase the amount of pedagogy and others reduce pedagogy. Some institutions will require some vocational baccalaureate degrees in other colleges while maintaining some of the degrees in the college of education. One conclusion that can be drawn from the comments is that inconsistency is prevalent. However, it appears that several institutions are considering the Holmes configuration.

Table 3
Extended Program Data by School Size and Agency Membership

School Model	Undergraduate Enrollment	Graduate Enrollment	Member of Holmes	Member of NCATE	Member of UCVE
2+2+2 in 5 yrs	55694	8674	Yes	Yes	
1,2,3,5,6	45060	10000	Yes	Yes	Yes
5 to 5 & 2	31962	6410	Yes	Yes	
1 to 5	27065	9275	Yes	Yes	Yes
1 to 1 & 2	26000	12000	Yes	Yes	Yes
1 to 5-yrs	22796	4699	Yes	Yes	Yes
1 to 5-yrs trial	21742	3965	Yes	Yes	
BA/BS + 2nd major	20751	8382	Yes	Yes	
5	19789	3219	Yes	Yes	
2 & 5	18714	8763		Yes	
1 & 5	18000	6000	Yes	Yes	Yes
1 to 5	14500	2350	Yes	Yes	Yes
5; option of 1	14000	3000	Yes		
2	13936	2149	Yes		
1 to 4 or 5	13794	3894	Yes	Yes	
2 or joint BA/MS	11097	4254	Yes	Yes	
5	9936	1174	Yes	Yes	
1 to 5 yrs	9833	3418		Yes	
5	9752	644		Yes	
Moving to 5	9500	750	Yes	Yes	
5	9250	2545		Yes	
1 & 5	8351	960		Yes	
1 to 5	6023	700		Yes	
1 with 2nd major	5998	724		Yes	
5	4667	1075		Yes	
5	3740	990		Yes	
1 & 2	3530	598		Yes	
2	1882	477		Yes	

Model 1: 4-yr BA/BS in education
Model 2: BA/BS in content area; Master's in education
Model 3: 5-yr BA/BS in education
Model 4: 5-yr work experience in teaching area
Model 5: 4-yr BA/BS in content area plus education hours for certification
Model 6: 5-yr BA/BS in content area plus BA/BS in education

Summary

Data reported by representatives from different vocational service areas within the same institution did not indicate consistent planning activities within the institutions across vocational education program areas. This could be because the respondents located in different units of the same institution are actually using or considering different models, or that there is confusion within the institution over directions.

There appears to be a definite movement, within the institutions reporting in this research (twenty-eight of forty-nine institutions indicated change), toward extended year vocational teacher education programs. The data are inconsistent, so it is difficult to know positively if the BA/BS in a content area with certification in the fifth year or the BA/BS in a content area with a master's degree in education is the option most often considered for reform in vocational teacher education.

The literature abounds with discussions of teacher education models. The traditional model that has been around for the last forty years is undergoing careful scrutiny by many institutions around the country. For the past several years there have been isolated cases of teacher education programs trying extended time models. In very recent years with the advent of the recommendations of the Holmes Group, more and more emphasis is being given to teacher education programs that deviate from the traditional four-year model.

References

Adams, D. A., Pratzner, F. C., Anderson, H., & Zimmerer, M. E. (1987). Vocational teacher education in an era of change. *Vocational Education Journal, 62* (4), 24.

American Association of Colleges for Teacher Education. (1983). *Educating a profession: Extended programs for teacher education.* Washington, DC: American Association of Colleges for Teacher Education

Andrew, M. D. (1983). The characteristics of students in a five-year teacher education program. *Journal of Teacher Education, 34* (1), 21.

Armstrong, D., Savage, T., & Erion, R. (1986). Program improvement: Not by length alone. *Action in Teacher Education*, 33-37.

Barr, R. D. (1987). Reform of teacher education and the problem of quality assurance. *Journal of Teacher Education, 38* (5), 46.

Cadenhead, K. (1985). Is substantive change in teacher education possible? *Journal of Teacher Education, 36* (4), 17-20.

Corbin, W. (1985). Universities should get out of the business of teaching teachers. *Teacher Educator, 20* (4), 25-28.

Crain, H. (1987). A personal response to the Holmes report. *Vocational Education Journal, 62* (4), 16.

Cyphert, F. R., & Ryan, K. A. (1984). Extending initial teacher preparation: Some issues and answers. *Action in Teacher Education, 6* (1–2), 63-69.

Egbert, R. L. (1985). The practice of preservice teacher education. *Journal of Teacher Education, 36* (1), 16-22.

Hawley, W. D. (1986). The risks and inadequacy of extended programs. In *Improving teacher education* (pp. 27-35). San Francisco: Jossey Bass.

Howey, K. R., & Zimpher, N. L. (1986). The current debate on teacher preparation. *Journal of Teacher Education, 37* (5), 41-48.

Keisling, P. (1984). How not to teach teachers. *Principal, 64* (2), 18-20.

National Commission on Secondary Vocational Education. (1986). *The unfinished agenda: The role of vocational education in the high school.* Columbus: The Ohio State University, National Center for Research in Vocational Education.

Roth, B. (1984-85). Alternative futures for teacher education. *Action in Teacher Education, 6* (4), 1-5.

Rutgers University. (1987). *A casebook of graduate level teacher education programs.* Rutgers: The State University of New Jersey, Graduate School of Education.

Ryan, R. D. (1988). *Trends and issues in vocational education-challenges for the future.* Fort Collins: Colorado State University, School of Occupational and Educational Studies.

Scannell, D. P. (1986). Extending teacher education programs. In *Improving teacher education* (pp. 17-26). San Francisco: Jossey Bass.

Scannell, D. P. (1984). The extended teacher education program at the University of Kansas. *Phi Delta Kappan, 65* (2), 130-133.

Schuck, R. F. (1984-85). As colleges of education face the future: Reflection of a friendly Philistine. *Teacher Educator, 20* (3), 2-6.

Tafel, L. S. (1984). Futures research: Important implications for teacher preparation programs. *Journal of Teacher Education, 35* (1), 6-9.

Tetenbaum, T. J., & Mulkeen, T. A. (1986). Designing teacher education for the twenty-first century. *Journal of Higher Education, 57* (6), 621-636.

Tucker, A., & Mautz, R. B. (1984). Solving the teacher education problem: A university-wide obligation. *Educational Record, 65* (2), 34-37.

Walker, R. (1986, February 24). Study cites pressures on vocational education. *Education Week*, 16.

Webb, R. B., & Sherman, R. R. (1983). Liberal education: An aim for colleges of education. *Journal of Teacher Education, 34* (4), 23-26.

Worms, C. L. (1987). Reform: The Memphis approach. *Vocational Education Journal, 62* (4), 31.

Roger L. Luft, Ed.D., is a professor and chairman, Department of Vocational Education, University of Wyoming, Laramie, Wyoming.

Mary Zimmerer, Ph.D., is an associate professor, School of Business, Mesa College, Grand Junction, Colorado.

Lydia Kercher, M.S., is an assistant professor, Department of Vocational Education, University of Wyoming, Laramie, Wyoming.

Establishing Linkages for Vocational Teacher Education Reform

Sharon L. O'Neil and John S. Washburn

Several of the recent initiatives that call for changes in the public schools have advocated the shared responsibilities of various organizations in supporting school reform. To be sure, the reorientation of vocational teacher education programs will require particular attention to the development of partnerships with education, business, industry, and government. These partnerships must focus on cooperation, not competition, and will be successful only if they can accommodate the changing character of vocational education within the broader context of other education reform.

This chapter calls attention to issues of collaboration and cooperation as important considerations in the redesign of vocational teacher education. By involving the full array of several publics in this redesign, there most certainly will be less possibility of needless confusion, which might impede successful reform. Issues described herein focus on collaboration in terms of (a) the mandates/benefits of linkages; (b) the external factors affecting linkages; (c) the internal factors affecting linkages; (d) the priorities for establishing linkages; and (e) the strategies for establishing and evaluating collaboration among groups concerned with vocational teacher education reform.

Mandates and Benefits of Collaboration

Federal mandates of the early and mid-eighties, specifically the Carl D. Perkins Vocational Education Act (1984) and the Job Training Partnership Act (1982), which affect vocational education, require recipients of federal funds to show evidence of collaborative efforts for the cost effective utilization of resources. Programs funded under these acts and others must satisfy stringent linkage requirements. A primary focus of these acts is to promote partnerships for efficient use of resources through horizontal, vertical, or multidimensional articulation. Movement toward a national policy of coordination, collaboration, and cooperation—legislatively mandated—is well documented (*Collaboration*, 1984; Committee for Economic Development, 1985; Greenwood, Hardesty, Banks, Larson, & Stork-Witson, 1981; McDonald, 1986; National Alliance of Business, 1986a, 1986b; O'Neil, 1987; O'Neil & Greenwood, 1985; Parks & Henderson, 1985; Tindall, Gugerty, Getzel, Salin, Wacker, & Crowley, 1982; Warmbrod, 1980; Zellner & Parrish, 1986).

There is no direct, specific requirement in the Perkins Act (1984) for establishing a linkage with education, business, industry, government, and the institutions offering vocational teacher education programs. However, the implication is clear. Redesign of the general, professional, and technical components of vocational teacher education and the consequent ability to attract and serve students will in large measure depend upon commitments to the *processes* and contents of the change.

The advantages of collaborative involvement in redesigning vocational teacher education programs significantly outweigh any disadvantages that may be associated with linkages. A teacher education program built around responsiveness to the needs of education, business, industry, and government will adapt quickly and smoothly to the complex delivery strategies and systems that prepare people for employment.

Vocational teacher education programs in universities need to be upgraded. They must meet the demanding challenges associated with the rapid changes in technology, the shifts in traditional demographic patterns, and the changing character of a global economy. Business and industry can assist in addressing the technical training of the teachers that educate workers who must adapt to technological change. Federal, state, and local educational agencies can assist in the re-examination of the quality, standards, and outcomes of teacher education programs. Governmental agencies can assist in identifying changes in the work force, e.g., ethnic composition, youth unemployment, and at-risk groups, that have implications for preparing vocational educators.

The basic premise of establishing linkages for vocational teacher education reform is to eliminate or at least to diminish unnecessary duplication of efforts. The ensuing benefits should be less costly and should offer better training for the growing numbers of teachers who need both education and training if they are to keep pace with the changing nature of work.

External Factors Affecting Collaboration

The need for collaboration may come not from the organizations traditionally involved with vocational education, but from dramatic socioeconomic changes. Affecting many segments of the vocational teacher enterprise, they are, namely, continuing and rapid technological change and changing characteristics of the work force. Rapid rates of technological change require that vocational teachers be regularly upgraded to accommodate technological innovation.

Consider, for example, the changing role of business education teachers. Teacher education programs focused first on preparing teachers who teach use of manual, later electric typewriters, and even later word processors and microcomputers. Universities and colleges must now prepare teachers who can use and define multidimensional databases, telecommunications, networks involving integrated, interrelated information systems. Similar patterns of rapidly advancing technologies can be cited in the industrial, health, agriculture, and home economics fields; marketing; and other segments of the occupational spectrum.

Because state-of-the-art technology—even simulated—is extremely costly, the redesign of vocational teacher education must include formal linkages with business and industry. These linkages are important to accommodate (a) student and business/university exchange of technical information, (b) student participation in seminars and workshops offered by business and industry, (c) student participation in practicum and internship experiences, and (d) use of business and industry personnel in the university classroom, and in other mutually beneficial activities.

Planning for vocational teacher education reform must address changes in the nature of the work force. These changes include, but are not limited to, the age and ethnic composition of the population, the number and proportion of women in the work force, and the substantial number of young people and at-risk groups who cannot find work.

Consider the problem of the thousands of teenage parents who are no longer in school and who lack the skills, knowledge, and attitudes essential to employment. What agencies can and should help universities reshape teacher education to assist new teachers in working with this burgeoning population? How can agencies in public health or public aid and other community-based organizations assist university educators as they educate the teachers who will prepare these students for immediate employment or furthering their education?

In a general sense, the collaborative involvement of teacher educators with the agencies and organizations most affected by technological and sociological change must be accommodated. Each must share in the responsibility for preparing vocational teachers to work with youth and adult populations.

Internal Factors Affecting Collaboration

Several studies have identified internal factors that may affect the design of vocational teacher education and the consequent need for collaboration among groups and agencies (Long, Warmbrod, Faddis, & Lerner, 1986; Stadt, 1987). These include collaboration with: relating/competing baccalaureate programs, regional accreditation bodies, high schools, associate degree granting institutions, and the full array of other public and private employment and training systems. Stadt noted,

> For many decades, vocational technical teacher educators have known that they compete with diverse baccalaureate programs, community colleges, other public and private training establishments, and related baccalaureate programs such as animal husbandry and other agriculture specialties, accounting and the business specialties, nursing and other health specialties, clothing and textiles and other home economics-related specialties, and industrial/engineering technology. (p. 2a)

Two reports, *Tomorrow's Teachers* (Holmes Group, 1986) and *A Nation Prepared: Teachers for the 21st Century* (Carnegie Forum, 1986) raised serious questions about the relationship among the general, professional, and technical components of teacher education programs. These reports advocated the active involvement of the leaders of secondary and postsecondary education, and state agencies in helping universities redesign teacher

education programs where credit hours, faculty, university support, enrollments and graduates may be declining (Adams, Pratzner, Anderson, & Zimmerer, 1987). However, the redesign of vocational teacher education may very well include linkages that go beyond those identified in these reports.

Vocational teacher education reform will revolve around the interrelationship of general, technical, and professional education experiences. Several universities have chosen to raise general or professional education standards, thereby limiting the amount of time available for technical training in baccalaureate degree programs.

Therefore, future articulation with two-year programs assumes increasing importance to benefit recruitment, research, staff development, and internship possibilities. Linkages with state licensing agencies may improve universities' ability to address the technical needs of prospective teachers. Other agencies, such as the American Council on Education and the Commission on Applied and Experiential Learning, can assist in relating past work experiences with technical study.

Priorities for Establishing Linkages

Focus on the Students Served

Educators and trainers agreed that the focus of education and training must be on students. Yet it is often difficult to determine just whom vocational teachers serve. Relevant literature has suggested that more emphasis be given to older and retired workers, at-risk groups, women, minorities, and other growing populations (Johnston & Packer, 1987). The challenges for vocational teacher educators are formidable. New teachers will need the competencies necessary to provide state-of-the-art technical training. And teachers will need the instructional skills necessary to organize and manage instruction for students with an array of interests, abilities, and aptitudes. All must be taught as a part of or in conjunction with a four-or five-year teacher education program. The conclusion is inescapable: without substantive linkages with other agencies teachers will not be prepared to serve students.

If students are to be prepared for environments that encourage changing employment, educators must build strong, ongoing partnerships, based on the expertise of many entities. In this regard, vocational educators have had the advantage of diverse experiences with the partnerships inherent in vocational preparation. As with vocational programs, a first priority for vocational teacher education must be to continue in combining educational preparation with work experience. Vocational educators also must expand this concept and take leadership roles in affecting and encouraging partnerships for the benefit of other teacher education programs, e.g., science, mathematics. Just as the Holmes Group (1986) suggested connecting universities to high schools, so must vocational teacher education programs be connected to business and industry. This priority encompasses (a) establishing linkages with a variety of entities, (b) promoting and expanding all types of partnerships for improving the education process, (c) and teaching linkage facilitator skills in vocational teacher education programs. Vocational teachers must practice and promote linkages with the agencies and organizations that they and their students serve.

Educational Basis for Linkages

Teacher education reform initiatives, many of which find their way into legislation, have generally been concerned with raising standards for graduation and/or licensure. Professional organizations and demands for accountability have given rise to reforms such as beginning teacher preparation after a liberal arts education (Holmes Group, 1986). There is strong public support for periodic, statewide competency testing for experienced teachers, as well as for testing prior to initial licensure (Gallup, 1986). Sandefur (as reported by Anrig, 1986) reported that thirty-two states already have a plan to have testing requirements for licensure. The implication of such initiatives is the need for high standards in all teacher education programs.

In *Investing in Our Children,* Joyce (1985) submitted that good teacher education students may not be recruited because of the negative publicity teaching has received and the expectation that future teachers must couple technological sophistication with a solid grounding in our rich heritage. This is true about vocational teacher education. Because vocational education has prided itself on combining educational preparation with work experience, a first priority for vocational educators should be to expand these linkages by seeking out corporate and government support to assure that vocational education is integral with any reform movement. Partnerships, working relationships, and collaborative endeavors must be a top priority if vocational teacher education reforms are to be successful. Promoting linkages should not be difficult because they are either implied or overtly stated in many of the popular initiatives.

Business and Industry Basis for Linkages

Corporations have a vital role in promoting linkages to assure that students, as future employees, will become productive workers (see Stadt, 1987). Business and industry, in collaboration with vocation teacher education, must take a primary role to ensure the best possible programming to equip students with skills to enter and successfully maintain jobs. Special populations, including noncollege-bound youths, must be included in program planning. A primary need exists for more employment opportunities for at-risk youths, for better quality work experiences, and for closer integration between work experiences and schooling ("The Forgotten Half," 1988).

Corporations, like educational institutions, will be unable to maintain a competitive edge if traditional work training delivery systems are used. It will take nonduplicated and cost-effective measures afforded by partnerships with the private sector to provide a mechanism for keeping curricula relevant, for targeting at-risk populations, and for improving the quality of the work force if education and training are to stay in step with societal needs.

Linkages with educational institutions may include addressing mutual priorities of education—providing a work force through internships and employment (of both teachers and students), exchanging ideas for further program development, conducting occupational analyses, designing specialized programs, researching information sources, and exploring ideas for future innovations (O'Neil & Greenwood, 1985). Additionally, linkages that capi-

talize on alternatives to traditional school programming and on-the-job training must be explored. Both the public and private sectors must be involved in evaluating worker retention, individual training accounts and entitlements, young workers' employee benefits, and enrollment subsidies (Sheets, Hahn, Berman, & Butler, 1987).

If input from business and industry is sought in redesigning vocational teacher education, no doubt students will be assured of better preparation for work. Corporate linkages are obviously essential to programming if for no other reason than availability of resources such as state-of-the-art facilities, equipment, and technology. They can couple the ability of industry to handle rapid change with the expertise of education to apply appropriate methodology and strategies for education and training personnel, and linkages not only make sense, but are vital.

Governmental Basis for Linkages

The effectiveness of educational reform may depend upon an evaluation of the vast array of resources available through community agencies and government (federal, state, and local). Redesigns of vocational teacher education should begin with assessment of a broad range of formal and informal sources. These include giving a high priority to identifying and assessing existing and potential linkage resources, which might be present in professional associations, libraries, and consortia, such as the Vocational-Technical Education Consortium of States, technical institutes, and similar sources.

Emphasis should be given to isolating and defining the priorities of each group. In so doing, linkage elements common to one or more entities may be identified. While needs vary, a formal linkage agreement, based on the identified priorities of the partners, should be mutually beneficial to all. The agreement can help to spell out parameters and responsibilities of the partners, establish timeliness and expected outcomes, and help to eliminate misunderstandings.

Thus, one key to successful vocational teacher education reform will be how well individuals can identify and utilize resources through linkages. Of concern is that if some entities are overlooked, efforts may be duplicated, diminishing the contribution of what might otherwise be excellent resources.

Establishing and Evaluating Collaboration

The collaborative involvement of education, business/industry, government, and community-based organizations in the redesign of vocational teacher education should focus on addressing several key questions.

1. What do professionals outside of the vocational teacher education arena perceive as the appropriate relationship among general, professional, and technical preparation of vocational teachers?

2. How can services beyond the university be marshalled to (a) attract and prepare vocational teachers and (b) assist university faculty to better communicate their mission and focus their resources?

3. Which agencies can best assist university faculty in redesigning vocational teacher education programs and can influence the systems that prepare people for work (e.g., proprietary schools, apprenticeship training)?

Educational and Government Linkages

Interaction with educators from other states and nations may prove useful in assessing vocational teachers' educational methods. Among others, collaboration with the University Council for Vocational Education, the American Vocational Education Professional Development Association, the Association of Universities for Vocational Leadership Development, the National Association for Vocational Education Program Improvement may be advantageous (National Association of State Directors of Vocational Education, 1987). Also to be considered is interaction with professionals in organizations such as the American Council on Education, the National Council on the Accreditation of Teacher Education, the American Council on Higher Education, the National Association of Trade and Technical Skills, and other groups.

The state agency selected as the sole agency responsible for vocational education in each state can offer valuable assistance in relating the needs of education as well as those of business and industry. Most state agencies work closely with the universities in their states to prepare professional personnel who can teach technical and employability skills. The emphasis on serving special populations, assuring sex equity, and evaluating student progress may be translated into state supported activities in preservice programs.

Other state level agencies must be involved in the redesign of vocational teacher education. The Council on Vocational Education, higher education authorities, state vocational associations, the agencies charged with administering the Joint Training Partnership Act legislation are pertinent examples. To a lesser degree, agencies responsible for public health, general assistance, employment and labor issues, and apprenticeship training may also play an important role. Each of the state agencies may influence in a unique way the policies and regulations guiding the preparation of vocational teachers.

At the local level, high schools, area vocational centers, community colleges, alternative schools, proprietary schools, and other community-based organizations may offer a unique regional focus for the vocational teacher education programs. Consider the need for special courses for a university preparing teachers who will work primarily with students of diverse cultural backgrounds or preparing provisionally certified teachers who have been hired in areas where fully certified teachers are unavailable.

While it may not be possible to collaborate with all key agencies and organizations involved in improving vocational education programs, it is helpful to understand their working relationships with one another. Figure 1, prepared by the National Vocational Technical Education Program Improvement Coordinating Council (The National Center for Research in Vocational Education, 1986), shows the number of agencies and organizations that may help in improving vocational teacher education programs. Consider, for example, the University Council for Vocational Education (UCVE), that was responsible for the preparation of this monograph. The UCVE, one of the related professional associations, will certainly be involved in redesigning vocational teacher education. Other groups shown in Figure 1 will also be involved to varying degrees. Finally, while a business/industrial/labor linkage is shown on the chart as a distant linkage, it is in practice closely linked with most of the agencies and organizations shown.

Business and Industry Linkages

Collaboration with representatives of business and industry will be varied. At the state level they include the Chamber of Commerce, the Manufacturers' Association, the Council on Vocational Education, the Job Training Coordinating Council, and others that may play a key role in refining the mission of a university's teacher education program. Organized labor may have education and training representatives who will assist in defining the changing role of workers and their training needs. Increasingly, university faculty are becoming involved with organizations such as the American Society for Training and Development and the National Society for Performance and Instruction. The focus of professional organizations on education and training is often closely aligned with the professional or technical needs of vocational teachers (e.g., student assessment, methods of teaching, and curriculum design). Also, not all of the students completing a vocational teacher education program are placed in the public schools. Many find their way into training and development positions in a corporate setting.

Locally, employers, including local retailers, may be involved in identifying and verifying technical tasks that students, and their teachers, must be expected to know and be able to do. Local employers may offer opportunities for internships, for students' use of state-of-the-art equipment, or for employees' involvement in classroom or laboratory activities.

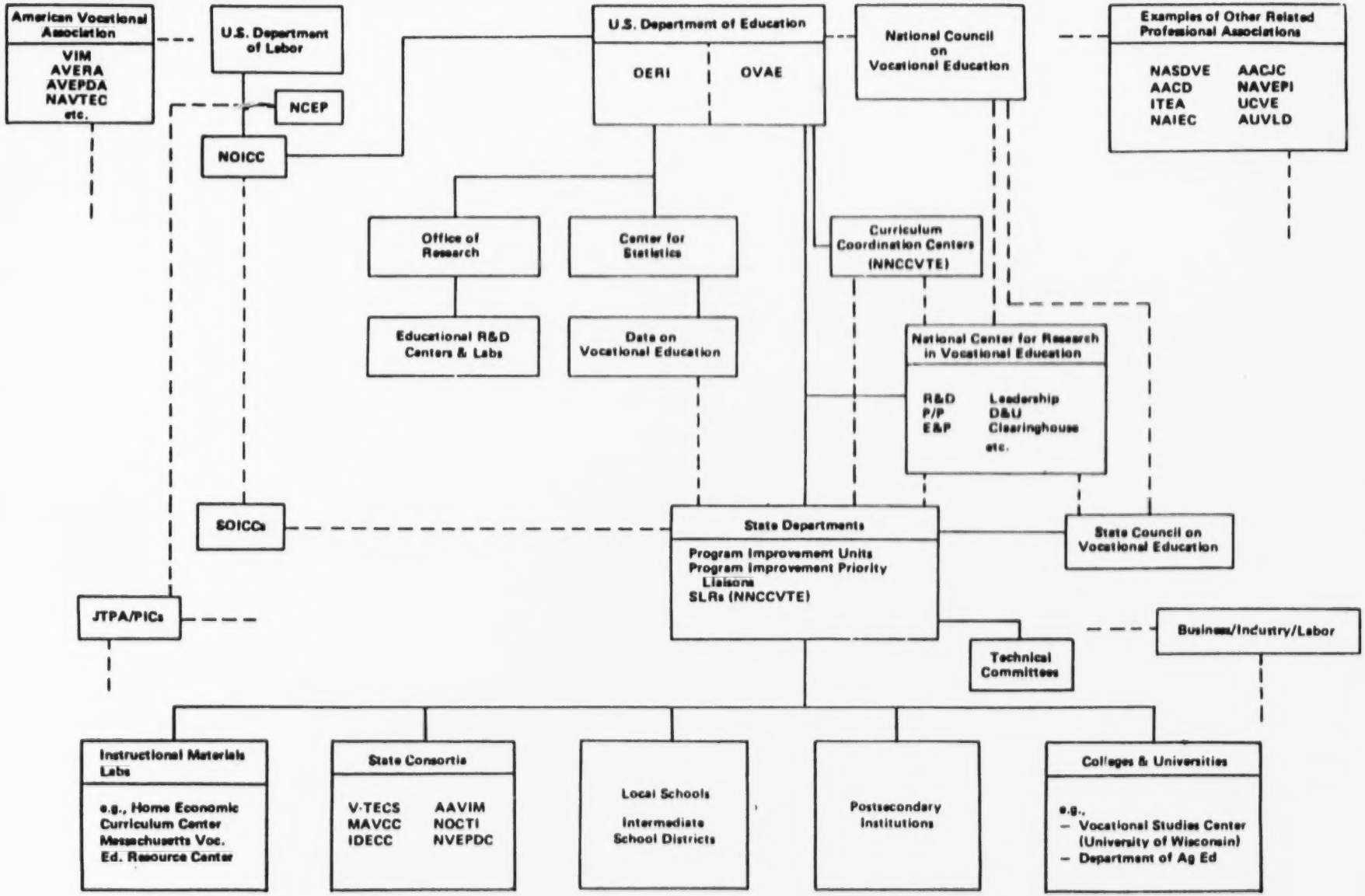

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Fig. 1. Vocational Education Program Improvement

Note: Prepared by the National Center for Research in Vocational Education, The Ohio State University (1986)

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Evaluating Collaboration

In an evaluation of linkages for a redesign of vocational teacher education programs, many questions must be addressed, including

1. What information is available concerning the strengths and weaknesses of existing programs?
2. What areas are lacking in resources, skills, and evaluation?
3. What resources have not been utilized or have been underutilized?
4. What are the future projections of need?
5. Who are the affected clients and what are their needs?
6. How do the linkages contribute to the success of vocational teacher education reform?
7. What types of agreements are imperative, and can justify the linkages?
8. What are the derived benefits?
9. What are the potential problems associated with specific types of agreements?
10. How are the strategies for and priorities of linkages determined and agreed upon among two or more partners with diverse interests?

The answers to these and similar questions will provide direction in evaluating linkages and in assuring the ultimate success of vocational teacher education reform.

Summary

Service to diverse populations has long been the forte of vocational education. However, with all of the proposed changes in vocational education specifically and teacher education in general, alignment and continuity with the agencies and organizations that have mutual goals are essential.

As in other areas of teacher education, programs of vocational teacher education must rely on the support of groups that can assist in redefining the standards and outcomes of such programs. Mutual collaboration is essential for a university faculty and the constituency it serves to function effectively.

References

Adams, D., Pratzner, F., Anderson, B., & Zimmerer, M. (1987). Vocational teacher education in an era of change. *Vocational Education Journal, 62* (4), 24-27.

Anrig, G. R. (1986, February). Teacher education and teacher testing: The rush to mandate. *Phi Delta Kappan*, pp. 447-451.

Carl D. Perkins Vocational Education Act, P. L. 98-524. (1984, October 2).

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century.* New York: Carnegie Corporation.

Collaboration: Vocational education and the private sector. (1984). (Yearbook of the American Vocational Association). Arlington, VA: American Vocational Association.

Committee for Economic Development. (1985). *Investing in our children.* (Report on Business and the Public School). New York: Author.

Gallup, A. M. (1986, September). The 18th annual Gallup poll of the public's attitudes toward the public schools. *Phi Delta Kappan, 68* (1), 43-45.

W. T. Grant Foundation's Commission on Work, Family, and Citizenship. (1988, January). The forgotten half: Non-College youth in America, An interim report on the school-to-work transition. In *Youth and America's future.* (98 pp.) Washington, DC: Author.

Greenwood, K. B., Hardesty, A., Banks, W., Larson, E., Stork-Witson, K. (1981, September). *A guide to education-for-work in Texas 1980-81.* (Volume 1: Baseline Information Series, The Education for Work Linkage Project). College Station, TX: Texas A&M University.

Holmes Group. (1986). *Tomorrow's teachers: A report of the Holmes group.* East Lansing, MI: Author.

Job Training Partnership Act of 1982, P. L. 97-300. (1982, October 13).

Johnston, W., & Packer, A. (1987, June). *Workforce 2000: Work and workers for the 21st century.* Indianapolis, IN: Hudson Institute.

Joyce, B. R. (1985). *Investing in our children.* Report of the committee for economic development, research, and policy. New York: Longman.

Long, J., Warmbrod, C., Faddis, C., & Lerner, M. (1986). *Avenues for articulation: Coordinating secondary and postsecondary programs.* Columbus: The Ohio State University.

McDonald, A. (1986, June). Solving educational problems through partnerships. *Phi Delta Kappan*, pp. 752-753.

National Alliance of Business. (1986a). *Employment policies: Looking to the year 2000.* Washington, DC: Author.

National Alliance of Business. (1986b). *1986-87 workplan.* Washington, DC: Author.

National Association of State Director of Vocational Education. (1987). *The National Vocational Technical Education Improvement Washington Council: A historical perspective.* Washington, DC: American Vocational Education Association.

O'Neil, S. L. (1987). Linkage of business and industry with education for business. In *Business education for a changing world.* (Yearbook No. 25). Reston, VA: National Business Education Association.

O'Neil, S. L., & Greenwood, K. B. (1985). *Education-for-work: A model for establishing linkages between education, business, industry, and government.* Houston, TX: University of Houston.

Parks, D. L., & Henderson, G. H. (1985, November/December). Why—and how—to build a coalition. *Vocational Education Journal,* pp. 27-29.

Sandefur, J. T. (1984). *Competency assessment of teachers: 1984 report.* Bowling Green, KY: Western Kentucky University.

Sheets, R., Hahn, A., Berman, R., & Butler, E. (1987). Who will train and educate tomorrow's workers? The financing of non-college-bound young workers' recurrent education. In *Youth and America's future.* W. T. Grant Foundation's Commission on Work, Family, and Citizenship.

Stadt, R. (1987). *Articulation and professional development for vocational education and other training systems.* (Visiting scholars monograph, University Council for Vocational Education). Carbondale, IL: Southern Illinois University.

Tindall, L. W., Gugerty, J., Getzel, E. E., Salin, J. A., Wacker, G. B., & Crowley, C. B. (1982). *Handbook on developing effective linkage strategies: Vocational education models for linking agencies serving the handicapped.* Madison, WI: Wisconsin Vocational Studies Center, University of Wisconsin.

Warmbrod, C. P. (1980). *Business, industry, and labor input in vocational education personnel development.* (Leadership Training Series No. 59.) Columbus, OH: The National Center for Research in Vocational Education.

Zellner, R. D., & Parrish, L. H. (1986). Critical issues in vocational teacher education. *Vocational Education Journal, 61* (2), 39-40.

Sharon L. O'Neil, Ph.D., is an associate professor, Department of Vocational Education, University of Houston, Houston, Texas.

John S. Washburn, Ph.D., is an associate professor and chair, Department of Vocational Education Studies, Southern Illinois University, Carbondale, Illinois.

The Knowledge Base for the Redesign of Vocational Teacher Education

Mildred Barnes Griggs and Catherine Burnham

An analysis of the knowledge that may form a base for the redesign of vocational teacher education engenders many questions. Why ought the programs be redesigned? What is to be accomplished? Is there a knowledge base of what is known about vocational teacher education that can serve as a base for program redesign? What research and evaluation data are needed to assess the outcomes of redesigned programs?

The purpose of this paper is to present a synthesis of the current data in teacher education related to the above questions. Scant research is evident on vocational teacher education. Of the studies that address teacher education in general, however, vocational teachers, teacher educators, teacher education students, and persons enrolled in vocational education programs may have been participants.

The few available studies on vocational teacher education tend to provide little specific information about the nature of the teacher preparation programs themselves. For example, a study of the programs conducted by institutions in the University Council for Vocational Education (Anderson, 1986) reported information about the size of the faculty, the use of graduate assistants in course instruction, and course demand, but provided little information about the content of the programs.

Certain factors tend to complicate efforts to study vocational teacher education. As in teacher education in general, vocational teacher education programs and practices vary widely. Erickson contended that the term *vocational teacher education* incorrectly suggests a program that in reality does not exist. He said, "There is no standard that applies across the board to all vocational fields" (cited in McKinney, 1986, p. 6).

Another factor that tends to complicate research in this area is that historically there have been alternate routes to becoming a vocational teacher. For example, recent data show that less than one-third of the vocational teachers in Florida enter the teaching profession from a traditional undergraduate program (Florida State Postsecondary Education Commission, 1985).

A third factor is that the location, administration, and governance of teacher education faculty and programs varies among institutions. A survey conducted by Carver and Krajewski (1985) revealed that teacher education programs are located in schools and colleges of education; departments of education; colleges of arts and sciences; and other

schools, colleges, or centers. However, schools and colleges of education are the dominant mode. The same was true within the University Council for Vocational Education (Anderson, 1986). The influence of persons involved in the preparation of teachers on requirements for admission, retention, graduation, course and program content, and instruction may range from total to none (Egbert, 1985).

Vocational education takes place in many settings and serves diverse populations. A fourth factor to complicate research on vocational teacher education is that programs may differ based on the delivery system(s) for which the graduates are being prepared to teach. Evans (1982) identified seven major systems that deliver vocational education: military, JTPA (formerly CETA), business and industry, apprenticeships, universities, public vocational education, and proprietary schools. Formal preparation of teachers for each system varies.

The program content and requirements are also likely to vary considerably according to whether or not the teachers will seek state teacher certification. This paper will focus on knowledge bases derived primarily from teacher education programs that lead to certification. Certification is required in most states for vocational educators to teach in public secondary schools.

Vocational education programs in secondary schools have some commonalities that have implications for program redesign. These are the following:

1. They impact both general and specific education.
2. They are a legitimate part of secondary education.
3. They have preparation for work as one of their specific functions.
4. They constitute a part of terminal education.
5. One concern is for preparing individuals to make wise choices.
6. One concern is for breadth and depth of knowledge.
7. They focus on specific area(s) of subject matter (Copa et al., 1985).

Reform in Teacher Education

More than 70 percent of the four-year colleges and universities in the United States have programs in teacher education (Clark, 1984; Galambos, 1986; Kluender, 1984; Egbert, 1985). El-Kwahas (1985) reported as many as 90 percent. This amounts to about 1287 institutions of higher education, 115 more than 10 years ago when there were 33 percent more students enrolled in teacher education programs and 53 percent more persons graduating from them (Feistritzer, 1984; Kluender, 1984). The number of vocational teacher education programs in unknown.

Feistritzer (1984) reported that the National Center for Education Information estimated that 135,000 teacher education majors graduated in 1983. This amounts to about half as many as graduated each year in the decade from 1977 to 1987 and is comparable to the 1970 and 1982 contrast of 284,000 and 143,000, respectively. About half of all new teachers obtain their degree in only 17 percent of the colleges and universities engaged in teacher education. Eighty percent of teacher education students go to public institutions, even

though well over half the colleges and universities preparing teachers are privately controlled (Feistritzer, 1984).

Petrie (1985) and Egbert (1985) expressed beliefs about why there has been an increase in the number of institutions offering teacher education programs, even though there has been a decline in enrollment. They believed that it is because teacher education programs are relatively inexpensive to operate, requiring a smaller outlay of money for equipment, facilities, and extensive separate curricula than other college majors (i.e., engineering, architecture).

A recent report of the American Association of Colleges for Teacher Education (AACTE, 1986) indicated that when the numerous examples of innovative secondary teacher education programs are taken as a whole, they tend to follow a similar pattern or sequence of courses. Typically, a secondary teacher education student completes two years of general studies before admission to a teacher education program. Foundation courses usually are taken early in the sequence, accompanied by some form of field experience. Methods courses, which also frequently require some type of field experience, typically come in the middle to latter part of the sequence. A teacher education program usually culminates with student teaching. The report indicated that despite a tendency towards standard program requirements, numerous and diverse ways can satisfy them. The average secondary education major is required to complete an average of fifty-two credits in general studies, thirty-nine hours in the academic major, eighteen hours in the academic minor, seven hours in education methods, nine hours in educational foundations, and ten hours in student teaching. The average number of hours required to complete the program is 135 (AACTE, 1986).

Despite the institutional standards that have been put into place to make teacher education rigorous and effective, teacher education and teachers have come under considerable criticism. Lanier and Little noted,

> The field of teacher education is recognized . . . as one whose problems have been generally well known since the turn of the century. Substantial improvement-oriented inquiry and developmental activity has been undertaken since then, although the troublesome circumstances remain basically unchanged. (1986, p. 527).

The call for change in teacher education has been nationwide with recommendations for reform coming from many sectors.

At least four recently issued reports focus on teacher education and teaching. They are *A Call for Change in Teacher Education* (National Commission on Excellence in Teacher Education, 1985); *Improving Teacher Education* (Southern Regional Education Board, 1985); *Tomorrow's Teachers* (Holmes Group, 1986); and *A Nation Prepared* (Carnegie Forum on Education and the Economy, 1986).

While the bases for the recommendations from these reports emanate from different rationales, some consensus and compatibility among them are evident. Shor (1986) synthesized the following as the policy agenda emanating from these reports:

1. The teaching profession needs higher standards for training and licensure.
2. Teacher education programs should be more selective, and in-service teachers need to meet more rigorous standards. Admissions and graduation standards in college programs should be raised.
3. Teachers need more in-service professional development. Veteran classroom teachers can train new teachers in school and future ones in campus programs.
4. Salaries need improvement, especially at entry-level, and career ladders should be instituted to give teachers incentives.
5. Teachers should be assigned fewer noninstructional duties, granted more autonomy in their classrooms, and included more in administrative and policy decisions.
6. More care and funds should be given to student teaching in college programs. Teacher preparation should include at least a one-year student-teaching internship.
7. The training of teachers should remain primarily on college campuses with some alternate, off-campus routes into the profession (a choice made by a number of states, most notably New Jersey with its alternate certification plan).
8. Education majors need more liberal arts courses in college.
9. For certification, new teachers should have to pass exams in subject matter, basic skills, and knowledge of pedagogy, in addition to completing successfully a one-year internship in student teaching.
10. Efforts should be made to attract to teaching the brightest students, especially high-achieving minority candidates.
11. Research on teaching needs to be more widely disseminated in education courses and in public schools.
12. A five-year undergraduate teacher education program is needed. This would require liberal arts, a concentration in an academic major, education courses, and an internship in student teaching, all of which could not be completed within the current four-year degree programs.

(pp. 193-194)

The reform or redesign of teacher education is pointless if it is not done to achieve some worthy aims or purposes. Dewey (1975) suggested three criteria that are useful for assessing the aims behind recommended changes for teacher education. First, the aim must be an outgrowth of existing conditions and be based upon a consideration of what is already going on, upon the resources and difficulties of the situation. Second, the aim as it emerges is tentative. Its test of worth is in the program's striving to realize it. As the aim is experimental, it can be changed as it is tested in action. Third, the aim is a means of action, and activity is an unavoidable means to something else. It is not significant or important on its own account.

The primary purpose of the teacher reform is to make teachers more effective. Shulman (1986) suggested that research on teacher education is based on two contrasting conceptions of effectiveness: pragmatic or correlative and normative. Pragmatic or correlative research focuses on those practices or performances that correlate with an outcome deemed desirable. Normative research is that in which a given exemplar of instruction is compared to a model of good teaching derived from a theory or ideology. The criterion used in normative research is "correspondence rather than correlation" (Shulman, p. 28). In a *Handbook of Research on Teaching* (Wittrock, 1986), Lanier and Little provided a comprehensive review of research based on these two conceptions. A criterion that they used to select the research to be reviewed was that it helped to provide "better understanding of the chronic problems associated with teacher education, with special attention to potential reasons why they endure" (p. 528). Research thus can serve as a base for emerging recommendations for the redesign and reform of teacher education programs.

Some common recommendations to produce more effective teachers are to make the education of teachers more intellectually sound; create standards of entry to the teaching profession via examinations and educational requirements that are professionally relevant and intellectually defensible; connect teacher education institutions to schools (and in the case of vocational education to all seven of its delivery systems); and abolish undergraduate teacher education majors. A final recommendation is to strengthen education in academic subjects by (a) revising the undergraduate curriculum so that future teachers can study the subjects they will teach with instructors who model good teaching and understand the pedagogy of their material, (b) organizing academic course-requirements and courses so that undergraduate students can gain a sense of the intellectual structure and boundaries of their disciplines, and (c) devising coherent programs that will support the advanced studies in pedagogy required for solid professional education (Holmes Group, 1986).

Research on Teacher Education Programs

Data from a survey of 441 member institutions of the American Association of Colleges for Teacher Education (AACTE, 1986) revealed the priorities placed on reform and identified the extent to which institutions were conducting such activities. The reform activities were: to develop a more positive image of teacher education within the college and university; keep close contacts with legislators and other political figures who make decisions affecting teacher education; work closely with noneducation, especially liberal arts, faculty; raise entrance and exit requirements for teacher education; revise and develop curricula in teacher education; and move teacher education to the postbaccalaureate level (cited in Guyton & Antonelli, 1987).

Curriculum revision had the highest mean rating for priority and for activity. Developing a positive image had the second highest priority and the third highest activity ranking. Working with liberal arts faculty, keeping close political contacts, and postbaccalaureate teacher education had the same priority and activity ranks: 3, 5, and 6, respectively. Raising entrance and exit requirements had the fourth highest priority ranking and the second highest activity ranking. Postbaccalaureate teacher education ranked last in both cases (Guyton & Antonelli, 1987).

Changes are occurring in admission, program requirements, and curricula in teacher education and in teacher certification. These changes have implications for the future redesign of teacher education programs and are implemented with the intent to improve the quality of teachers and teaching.

Admission and Graduation Requirements

Admission to teacher education programs has mainly been a result of a self-selection process (Applegate, 1987). One of the criticisms leveled at teachers and teacher education programs is that, based on the usual academic indicators (standardized test scores, rank in high school class), teachers and potential teachers are not among the more academically

talented students (Feistritzer, 1985; Galambos, 1986; Hall, 1984, Southern Regional Education Board, 1985).

In the past, the criteria most often used for admission to teacher education programs have been academic grade point average, desire or commitment to teaching, satisfactory physical and mental health, voice quality and appearance, satisfactory completion of a course in oral communication or speech, and satisfactory personality or character (Sinclair & Picogna, 1974). Screening has commonly been done by a committee through pre-admission interviews (Laman & Reeves, 1982). More recently, the most commonly used screening measures have been the overall score on standardized tests and grade point average (Evertson, Hawley, & Zlotnick, 1985). These criteria are among those recommended in many reform reports.

Some additional recent changes in admission criteria to teacher education programs are as follows:

1. Post freshman-level entry into programs (Counts & Silverman, 1985; Feistritzer, 1984; Galambos, 1986).

2. Experience with children prior to admission (Counts & Silverman, 1985; Feistritzer, 1984; Ishler, 1984).

3. Higher minimum grade point average (GPA) requirement (Galambos, 1986).

4. Increased use of interviews and recommendations as screening devices (Feistritzer, 1984).

5. Increased use of standardized or proficiency test for entry into programs or before being certified (Holstrom, 1985; Murray, 1986; Sandefur, 1984).

Among the 520 institutions surveyed by El-Kwahas (1985), seventy-six percent indicated that their program standards were higher than a few years before. Larger teacher education programs tended to report more changes in entrance and exit requirements, especially GPA, than did smaller programs (Guyton & Antonelli, 1987).

An increasing number of institutions and states are also basing entrance or exit from a teacher education program on scores on tests of basic skills, content in the teaching major, and pedagogical skills (Goertz, 1986; Hughes, 1984; Ishler, 1984; Stolworthy, 1987). No test is uniformly used. Ishler (1984) found in a survey of sixty-six institutions, the commonly used tests were the Pre-Professional Skills Test, California Achievement Test, ACT, SAT, and tests developed at state or local levels.

Within the University Council for Vocational Education, seven of the twenty-one member institutions require competency testing prior to admission to their teacher education programs (Anderson, 1986). Other than this, any conclusions about the admission and exit

requirements for vocational teacher education must be inferred from the data on teacher education in general.

While it is apparent that state legislatures and various national commissions believe that the quality of teaching will improve if standards for admission to teacher education programs are raised, Evertson (1984) contended that research does not support this belief and that there is no way to know which, if any, minimal admission standards will result in producing quality teachers. A cautionary note is that there is also no way to determine which standards deny access to students who would be excellent teachers (Evertson, Hawley, & Zlotnick, 1985).

Program Requirements

One of the changes recommended for the reform of teacher education is that professional education for teachers be moved to the postbaccalaureate level. Guyton and Antonelli (1987) found little interest or activity being exerted to implement this recommendation. They indicated that, in most cases, where postbaccalaureate programs exist, they tend to be specialized and at large institutions with graduate programs.

While there may not be a trend among institutions to move teacher education to the postbaccalaureate level, there have been some programmatic changes. One found by Holstrom (1985) was an increase in the credit hours required in teacher education programs. The percentage of increase from 1980-1981 to 1984-1985 was .6 percent in private institutions and .8 percent in public institutions. However, Galambos (1985) indicated that teacher education students were found to graduate with just two more total credit hours than did arts and science majors.

The credit hours required in vocational teacher education programs tend to be similar to those required in other programs that prepare secondary teachers. The University Council for Vocational Education institutions require at least 120 hours. Some programs require 130 credit hours and a few require as many as 140 (Anderson, 1986). The average number of credit hours required in other programs that prepare secondary and elementary teachers was 129.9 at public institutions and 127.2 at private institutions (Galambos, 1985).

State agencies influence the requirements of teacher education programs. In all fifty states, a state agency approves the content of teacher education programs and establishes minimum course hours in general and professional education and the minimum hours in the subject specialty in thirty-eight states. In nineteen states, the agency sets the minimum grade point average (Goertz, 1986; see also Egbert, 1985).

Advice on teacher education program design is sometimes sought from people with a vested interest in the program. Although the use of advisory committees tends to be a common practice in vocational education, a report issued by the Florida State Postsecondary Education Commission (1985) indicated that, while about two-thirds of the preservice programs have advisory committees, less than one-half of them have been involved in determining curricula requirements.

The value of the general education component of teacher education programs has also been advanced by the reform reports. The reported requirements for general education in teacher education programs tend to range from thirty-three percent to forty percent (Cruickshank, 1984; Egbert, 1985; Ishler, 1984).

Despite the rationale given for increasing the general education requirements in teacher education programs, their actual effect is open to question. Evertson, Hawley, and Zlotnick (1985) stated,

> We could not find any evidence in research on teacher education specifically or undergraduate education more generally that would provide support for the idea that a broad liberal arts education promotes the development of values, analytical skills, love of learning, or other personal and intellectual characteristics one might reasonably attribute to teachers who care about their students and understand what it takes to facilitate learning. (p. 5)

Professional Education Requirements

Professional education, in the context of teacher education, means designing courses exclusively for persons preparing to teach (Cruickshank, 1984). Such courses are perceived by their proponents as being ways to acquire knowledge, skills, abilities, and attitudes needed to produce effective teachers. Foundation courses, methods courses, and clinical experiences are generally categorized as professional education. Foundation courses usually focus on the philosophy, history and sociocultural aspects of education, and on educational psychology and human development.

One finding in the research is that there has been an increase in the number of credit hours required in the professional education of teachers (Feistritzer, 1985; Feistritzer, 1984); however, the number of credit hours required varies considerably. Galambos (1985) reported an average of forty-nine hours; Ishler (1984) reported an average of twenty-eight (with a range of twelve to forty-seven); and Holstrom (1985) reported a range of fewer than thirty hours to more than sixty, with the majority of programs falling in the fewer than thirty credit hours and thirty to forty-five credit hour categories.

As to information about methods and principles of teaching courses, Holstrom (1985) reported that an average of nine credit hours are devoted to these courses. Methods courses were required by 97.1 percent of the institutions in that study. Public institutions tended to require slightly more hours than private institutions.

The value of the content taught in professional education courses has been criticized. Galambos (1986) charged that education programs tend not to stress the research-generated generic knowledge about effective teaching. Instead, they tend to concentrate on the discrete methods courses. A survey of 824 Wisconsin secondary school vocational personnel revealed that they judged the following as the most important parts of their own teacher education: "analysis and development of appropriate curriculum; understanding of new instructional technology, equipment, and methods; awareness of emerging technology; in-depth knowledge of vocational disciplines; and understanding of vocational education's relationship to career development and general education "Wisconsin Association of Secondary Vocational Administrators" (1983, p. i).

An indication of the questionable status of the professional education component of teacher education is the move to abolish it as a requirement for becoming a teacher. Feistritzer (1984) said,

> Several states have instituted policies allowing liberal arts graduates to begin teaching careers without any teacher preparation courses . . . . Advocates of this policy assume that certification policies have prevented qualified candidates from entering teaching careers. (pp. 95-96)

It is a fairly common practice in postsecondary vocational education programs to employ persons with technical expertise who have not been educated as teachers. When such people are employed to teach in secondary programs, they can often become provisionally certified. Scott (1985) emphasized the need to educate to their new roles the teachers "who come directly from industry (whether or not they have a college degree) without the benefit of teacher preparation courses" (p. 32). Specifically, he believed that they need to "know who it is they are teaching, how their students are motivated to learn, how to put their technical knowledge into a curriculum, and how to create an overall instructional plan with daily lesson plans" (p. 32).

Erekson and Barr (1985) determined that the research is "inconclusive as to whether provisionally certified teachers are as effective in instructing students as their traditionally prepared counterparts" (p. 17). Evertson, Hawley, and Zlotnick (1985) reviewed research that compared regularly and provisionally certified teachers. In eleven of the thirteen studies, regularly certified teachers ranked higher in effectiveness than did the provisionally certified teachers. Two studies showed no difference or more positive achievements by the provisionally certified teachers. These authors pointed out that most of the researchers did not control for possible differences in the academic ability of student or teachers. These data are therefore inconclusive.

Specialty Area Requirements

A common recommendation is to terminate bachelor degree programs in education and to require all teachers to earn degrees in a discipline or a content area. The stated purpose is to make teachers more knowledgeable in their teaching area. Shulman (1986) stated,

> Mere content knowledge is likely to be as useless pedagogically as content-free skill. But to blend properly the two aspects of a teacher's capacities requires that we pay as much attention to the content aspects of teaching as we have recently devoted to the elements of the teaching process. (p. 15)

Egbert (1985) found that credit hour requirements of the teaching specialties vary from twenty-five percent to sixty percent of total programs. Ishler (1984) found that the semester hours required in specialty areas ranged from twenty-four (students with one teaching major) to sixty-six, with a mean of thirty-five. In a survey of 520 colleges and universities, El-Kwahas (1985) found that ninety-two percent required a major or minor in a discipline for students in secondary education and three percent reported considering instituting this requirement. In a majority of the institutions studied by Holmstrom (1985), no change in subject-area credit-hour requirements over what they were five years before was being considered. Only about ten percent reported a slight increase.

The total number or the percent of hours to be taken in the teaching specialty is not the only concern. Another is the level of courses. Galambos (1985) compared both the number and level of hours earned by secondary teacher education students in several disciplines with their counterparts in nonteaching majors. The major difference tended to be level, not number. Teacher education students tended to take fewer upper level courses than did the nonteaching majors.

As with many of the reform recommendations, change is underway; however, there is no clear basis for deciding how much credit is needed or at what level courses should come in the specialty area to enhance effectiveness. As noted earlier, Evertson, Hawley, and Zlotnick (1985) believed that, "There is little reason to believe increasing teachers' knowledge of their subjects beyond the typical certification requirements will increase teacher effectiveness" (p. 5).

Teacher Certification

Certification does impinge upon teacher preparation curricula. Galambos (1986) identified three routes toward obtaining a teaching certificate in many states:

- completion of an approved teacher education program,
- completion of a set of prescribed courses for various teaching specialties, and
- alternative certification programs. (p. 15)

An approved program is one in which a state agency approves the courses and other requirements. State agencies thereby can greatly influence or control to a large extent the courses that teacher education students take (Feistritzer, 1984).

Murray (1986) reported on a survey of 251 teacher-preparation institutions as to the different routes to certification in 1983-84 and previous years. Thirty-three percent of the programs required more academic content and were more experientially based than in previous years. About thirty-seven percent had been aimed at a different student population. Twenty-nine percent had extended the program beyond four years. About thirteen percent had reduced the amount of pedagogical content and almost ten percent were offering dual degrees with the arts and sciences. About five percent changed to not requiring student teaching.

Other recent changes included increased field experience before student teaching and on-the-job experience after student teaching; new requirements for on-the-job teaching experience before awarding of standard certification; and demonstrated competence in basic skills, subject matter and teaching skills (Counts & Silverman, 1985). Applicants for certification were being tested in basic skills in twenty-one states, general knowledge in twelve states, professional knowledge in sixteen states and/or knowledge of teacher's specialty area in twenty states (Goertz, 1986).

Evaluation of Redesigned Programs

There are many unknowns regarding teacher education. Many of the reform recommendations are based on conventional wisdom because sound reliable data often do not exist. The lack of data will not need to deter the redesign of teacher education, but it can deter teacher educators and other policymakers from making informed decisions relative to further reform and in assessing outcomes of redesigned programs.

A comprehensive research and evaluation plan needs to be integral in each redesigned program. What should be the focus of these endeavors? Shulman (1986) cautioned that the kind of data derived is a function of the ways in which questions are formulated. He noted, "Different programs of research are likely to produce different types of knowledge about teaching, knowledge of interest to theoreticians, policymakers, and practitioners" (1986, p. 27).

Shulman (1986) cited the following as a nonexhaustive range of the types of knowledge that can be derived from research on teaching or for conceiving research on teacher education:

1. **Empirical propositions**. These are generalizations that are derived directly from empirical findings. They are frequently found in discussions of process-product research, but can be derived from other types.
2. **Moral propositions.** These normative generalizations are derived from value positions, ethical analyses, or ideological commitments.
3. **Conceptual inventions, clarifications, and critiques.** These are conceptual developments that may be derived from empirical work, but involve a far longer leap from the data, or from the inventive combining of empirical generalizations from diverse sources.
4. **Exemplars of practice or malpractice.** These are normally case descriptions of teachers, classrooms, or schools.
5. **Technologies or procedural protocols.** These are systematic approaches to instruction in which the sequence of desirable instructional events is specified. They represent combinations of empirical generalization, practical experience, useful cases as exemplars, and the intuitions of a designer. (p. 27)

In addition to types of knowledge produced in the research on teaching, several other issues impinge upon the research: the conceptions of teacher effectiveness (correlative or normative); ideological commitments regarding education, (vocational education) teaching, and forms of inquiry; and conceptions of appropriateness of different research types, methods, and designs (Shulman, 1986).

Lanier and Little's (1986) use of the "commonplaces of teaching" (p. 528) provided further direction for determining areas in which to focus research and evaluation in teacher education. The commonplaces of teaching are

> . . . a teacher, a student, a curriculum, and a milieu. In teacher education, the teachers of teachers represent a diversity of roles and backgrounds--college professors, graduate assistants, public school supervisors, and others. The students are adults who are either prospective or practicing teachers. The curriculum of teacher education includes studies in general education, subject matter specialties, and pedagogy. The milieu or context of teacher education includes the general society, the university, the school district, the school, and various other contextual settings that affect teacher education in America. (Lanier & Little, 1986, p. 528)

McKinney (1986) said "If program evaluation is to contribute to program improvement, it must provide useful information to vocational teacher education decisionmakers and policymakers" (p. 3). He expressed concern that current evaluation efforts tend to rely almost exclusively on an empirical-analytic perspective (positivistic model of science) and that "the methodology relies extensively on quantitative measurement and extensive, sophisticated statistical analysis" (p. 11). It thus reduces the human and social aspects of vocational teacher education to discrete, independent, and dependent variables, and fails to capture the complexity and holistic nature of the programs. Lanier and Little's (1986) notion of the commonplaces of teacher education speak to its complexity and holistic nature in that all of these aspects are interdependent.

To capture a more realistic picture of vocational teacher education, McKinney (1986) advocated basing program evaluation on critical theory. "Critical theory is based on the assumption that persons bring to the evaluation process different perceptions of, and vested interest in a given issue" (p. 17). It is also concerned with (a) the understandings and motives resulting in human action, (b) the way programs are altered as individuals develop better understandings of program processes and structures, (c) the role of evaluators as participants rather than disinterested observers in program improvement, and (d) stakeholders engaging in a self-education process about vocational teacher education programs and the environment in which they exist.

McKinney (1986) made the following recommendations regarding the evaluation of vocational teacher education programs:

1. Vocational teacher educators engaged in program evaluation should accept the reality and existence of paradigms more suitable for evaluation than the dominant empirical-analytic paradigm. Program evaluation based in critical theory is more congruent with the realities of vocationa teacher education endeavors.

2. Most vocational teacher educators have been trained in one dominant inquirt paradigm. Professional development activities on an individual and group basis are needed so that vocational teacher educators can acquire the background knowledge essential to the application of more realistic inquiry paradigms. These professional development activities need the joint leadership, cooperation, and support of federal, state, and local policymakers and decision makers. Professional organizations should be actively in these activities.

3. To be most beneficial, vocational teacher education program evaluation must be continuous. Evaluation activities must be more than a once every three- or five-year effort.

4. Materials need to be developed for use by vocational teacher educators in evaluating their programs. These materials should be field-tested, revised, and disseminated through exemplary sites and seminars/conferences. (p. 32)

Conclusions

For a variety of reasons, teacher education programs have been severely criticized and have experienced numerous calls for their reform. Although many programs are being redesigned, considerable debate continues about the validity of the bases for program redesign because research data are often inconclusive. To make informed decisions about ways to enhance teacher effectiveness and to avoid perpetuating any negative consequences, both research and evaluation data of redesigned programs are essential.

There is reason to believe that while there may be a common knowledge base for all of teacher education, there is also a knowledge base that is unique to vocational teacher education. While there is some disagreement about the content and value of teacher education, data to support either view are scant.

Research on the knowledge base of vocational teacher education is needed. Several questions have been raised from the literature reviewed in this paper. We have not yet been able to determine conclusively what vocational teachers need to know and be able to do in order to help students achieve in their classes. Nor can we say definitively what course work and field experiences are most appropriate to help them acquire the knowledge and skills, what the standards ought to be for entry into and exiting from the programs, or what standards ought to be used to determine whether a potential teacher is certifiable. Questions about the knowledge base for vocational teacher education continue to need our attention.

References

American Association of Colleges for Teacher Education. (1986). *Teacher education policy in the states: Fifty-state survey of legislative and administrative actions.* Washington, DC: Author. (ERIC Document Reproduction Service No. ED 271 438)

Anderson, B. H. (1986). *The status of vocational teacher education in the University Council for Vocational Education member institutions.* University Council for Vocational Education. (ERIC Document Reproduction Service No. ED 276 803)

Applegate, J. H. (1987). Teacher selection: An overview. *Journal of Teacher Education, 38* (2), 2-6.

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century.* New York: Carnegie Corporation.

Carver, F. D., & Krajewski, R. J. (1985, February). *Organization and operation of teacher education programs: Implications for change in professional educator preparation.* Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Denver, CO. (ERIC Document Reproduction Service No. ED 257 790)

Clark, D. L. (1984). Better teachers for the year 2000: A proposal for the structural reform of teacher education. *Phi Delta Kappan, 66* (2), 116-120.

Copa, G., Daines, J., Ernest, L., Knight, J., Leske, G., Persico, J., Plibal, J., & Scholl, S. (1985). *Purpose of vocational education in the secondary schools.* St. Paul: University of Minnesota, Minnesota Research and Development Center for Vocational Education and Department of Vocational and Technical Education.

Counts, S., & Silverman, D. L. (1985). *Climate survey: Teacher education and certification.* Juneau: Alaska State Department of Education. (ERIC Document Reproduction Service No. ED 256 747).

Cruickshank, D. R. (1984). *Models for the preparation of America's teachers.* Bloomington, IN: Phi Delta Kappan Education Foundation.

Dewey, J. (1987). Aims of education. In S. Dropkin, H. Full, & E. Schwarcz (Eds.), *Contemporary American education: An anthology of issues, problems, challenges* (pp. 228-237). New York: Macmillan.

Egbert, R. L. (1985). The practice of preservice teacher education. *Journal of Teacher Education, 36* (1), 16-22.

El-Kwahas, E. (1985). *Campus trends* (1984 higher education panel report no. 65). Washington, DC: American Council on Education. (ERIC Document Reproduction Service No. ED 252 171)

Erekson, T., & Barr, L. (1985). Alternative credentialing: Lessons from vocation education. *Journal of Teacher Education, 36* (3), 16-19.

Evans, R. E. (1982). The role of the federal government in vocational education. In *Avocational education policy for the 1980s* (pp. 6-24). Washington, DC: The National Council on Employment Policy.

Evertson, C. M. (1984). *The characteristics of effective teacher preparation programs: A review of research.* Washington, DC: National Commission on Excellence in Teacher Education. (ERIC Document Reproduction Service No. ED 250 314)

Feistritzer, C. E. (1984). *The making of a teacher: A report on teacher education and certification.* Washington, DC: National Center for Education Information.

Feistritzer, C. E. (1985). *The condition of teaching: A state by state analysis* (A Carnegie Foundation Report). Lawrenceville, NJ: Princeton University Press. (ERIC Document Service No. ED 267 070)

Florida State Postsecondary Education Commission. (1985). *A study of postsecondary vocational teacher preparation and certification* (Report No. 4). Tallahassee, FL: Author. (ERIC Document Reproduction Service No. ED 266 247)

Galambos, E. C. (1985). *Teacher preparation: The anatomy of a college degree.* Atlanta, GA: Southern Regional Education Board. (ERIC Document Reproduction Service No. ED 258 957)

Galambos, E. C. (1986). *Teachers in the United States.* Washington, DC: Office of Educational Research and Development. (ERIC Document Reproduction Service No. ED 271 398)

Goertz, M. E. (1986). *State educational standards: A 50 state survey.* Princeton, NJ: Educational Testing Service. (ERIC Document Reproduction Service No. ED 275 726)

Guyton, E., & Antonelli, G. (1987). Educational leaders' reports of priorities and activities in selected areas of teacher education reform. *Journal of Teacher Education. 38*, 45-49.

Hall, C. L. (1984). *Preparing teachers for the future: Gazing into the VDT.* Paper presented at the conference of the Vocational-Teachers Education Association, Ruidoso, NM. (ERIC Document Reproduction Service No. ED 256 756)

Holmes Group. (1986). *Tomorrow's teachers: A report of the Holmes Group.* East Lansing, MI: Author.

Holmstrom, E. I. (1985). *Recent changes in teacher education programs.* (Higher Education Panel Report No. 67). Washington, DC: American Council on Education. (ERIC Document Reproduction Service No. ED 266 126)

Hughes, R. P. (1984). Excellence in vocational teacher education. In J. G. Magisos et al. *Excellence in vocational education: Four levels, four perspectives* (pp. 31-46). Columbus: The Ohio State University, National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 246 310)

Ishler, R. E. (1984). Requirements for admission to and graduation from teacher education. *Phi Delta Kappan, 66* (2), 121-122.

Kluender, M. M. (1984). Teacher education programs in the 1980s: Some selected characteristics. *Journal of Teacher Education, 35* (4), 33-35.

Laman, A., & Reeves, D. E. (1982). *A survey of criteria for admitting students to teacher education programs.* Bowling Green: Western Kentucky University. (ERIC Document Service No. ED 220 433).

Lanier, J. E., & Little, J. W. (1986). Research in teacher education. In M. C. Wittrock (Ed.), *Handbook on research on teaching* (3rd ed.) (pp. 527-569). New York: Macmillan.

McKinney, F. L. (1986). Evaluating vocational teacher education programs. In *Achieving excellence in vocational teacher education: A compendium of five state-of-the-art papers* (Contract No. 300-85-137). New York: City University of New York, Institute for Research and Development in Occupational Education.

Murray, F. B. (1986). Teacher education. *Change, 18* (5), 23.

National Commission on Excellence in Teacher Education. (1985, March 6). A call for change in teacher education. *The Chronicle of Higher Education, 30* (1) 13, 14, 16-21.

Petrie, H. G. (1985). Educational reform and teacher education. In P. G. Altbach, G. P. Kelley, & L. Weis (Eds.), *Excellence in education: Perspectives on policy and practice* (pp. 235-238). New York: Prometheus.

Sandefur, J. T. (1984). *Standards for admission to teacher education programs* (An issue paper prepared for the Minnesota Higher Education Coordinating Board). St. Paul: Minnesota Higher Education Coordinating Board. (ERIC Document Reproduction Service No. ED 251 417)

Scott, C. P. (1985). That critical first year. *Vocational Education Journal, 60* (6), 32-34.

Shor, I. (1986). Equality is excellence: Transforming teacher education and the learning process. *Harvard Educational Review, 56* (4), 406-426.

Shulman, L. S. (1986). Paradigms and research programs in the study of teaching: A contemporary perspective. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.) (pp. 3-35). New York: Macmillan.

Sinclair, W., & Picogna, J. L. (1974). How are education students selected? *Clearing House, 48* (9), 541-593.

Southern Regional Education Board. (1985). *Improving teacher education: An agenda for higher education and the schools.* (A report to the Southern Regional Education Boards by its Commission for Educational Quality. Atlanta, GA: Author. (ERIC Document Reproduction Service No. ED 261 029)

Stolworthy, R. L. (1987). Preservice teacher education programs: Review of standards, practices, and evaluative efforts. *Education, 107* (3), 300-304.

Wisconsin Association of Secondary Vocational Administrators. *Preparation and development of vocational educators: A survey of Wisconsin vocational educators.* Madison, WI: Author. (ERIC Document Reproduction Service No. ED 242 940)

Wittrock, M. C. (Ed.). (1986). *Handbook of research on teaching* (3rd ed.). New York: Macmillan.

Mildred Barnes Griggs, Ph.D., is a professor, Department of Vocational and Technical Education, University of Illinois, Urbana-Champaign, Illinois.

Catherine Burnham, is a Ph.D. candidate, Department of Vocational and Technical Education, University of Illinois, Urbana-Champaign, Illinois.

Forces Affecting the High School Curricula And Their Implications Upon Vocational Teacher Education

Jack Rudolph, Betty Fry, and Lowell Barr

Changes in education, the standard in the 1980s, have been brought about by factors affecting all of education. These include, among others, increased graduation requirements for secondary students, lack of funding for some programs—particularly vocational education, the back-to-basics training being required in the last half of the 1980s, economic competition on an international scale, an increased number of minority students, and the smaller school-age population.

Teacher education plays a major role in preparing teachers to enter increasingly complex teaching situations and in providing teachers with the skills necessary to enter the world of education. With a nucleus of a well-educated work force, the United States is competitive in the world market. With this in mind, the researchers have examined the above areas of concern.

A review of related literature given here related to forces affecting high school curricula and implications for vocational teacher preparation. Among the forces affecting high school curriculum are (a) increased graduation requirements; (b) the basics movement; (c) minorities, at-risk students, and itinerant populations; (d) technology; (e) enrollment changes; f) tracking; and (g) preparing students for the world market. The implications for vocational teacher preparation relate to (a) knowledge of subject matter, (b) technology, (c) the adult student, and (d) increased involvement of the business community.

Forces Affecting High School Curricula

Increased Graduation Requirements

According to Strickland and Elson (1987), many of the states and territories of the United States have increased graduation requirements for high school students. State directors of vocational education in all fifty states and six territories were asked to respond to a questionnaire regarding graduation requirements and their subsequent effect on vocational education. Directors from forty-nine states and four territories responded. Of the respondents, forty-five indicated that high school graduation requirements had increased and eight reported no change. In these same states and territories, fifteen indicated vocational

education training was required for graduation; thirty-eight had no vocational education requirement for graduation.

Eighty percent of the responses showed increased graduation requirements at the secondary level, indicating less time for electives so that enrollments in vocational courses might well drop accordingly (Strickland & Elson, 1987). Seventeen states reporting an increase in overall high school graduation requirements did show a drop in vocational education enrollment. However, the states or territories of Alabama, Mississippi, Montana, New York, Oregon, Tennessee, Texas, West Virginia, District of Columbia, and Guam increased vocational enrollments even though high school graduation requirements were also increased. Only four of these states—Alabama, New York, Oregon, and West Virginia—required vocational education courses for graduation. Vocational educators must cooperate with school administrators and peers in the necessary planning to train vocational students at the same time that secondary education requirements are increasing.

The Basics Movement

Along with increasing graduation requirements, schools are returning to an emphasis on basic English and math. Both the Carnegie (1986) and the Goodlad (1984) reports found education to be sadly lacking in these basic skills. Boyer (1983) stated, "Many students are two or more years below grade level in reading and math" (p. 17). Goodlad (1984) recommended that up to eighteen percent of a student's program at the secondary level be in mathematics and an additional eighteen percent of the program be in English and literature.

The Holmes Group (1986), in requiring a fifth year for teacher education, would give additional weight to math and English training of teachers. The College Board (1983) required that students have, "the ability to use mathematical relationships to describe results obtained by observation and experimentation" (p. 23). The report went on to say that students should have, "the ability to interpret, in nonmathematical language, relationships presented in mathematical form" (p. 23). Both mathematics and English requirements have been raised for students to be academically prepared to enter college.

A Nation at Risk (Carnegie Task Force on Teaching as a Profession,1983) recommended the following:

> . . . that state and local high school graduation requirements be strengthened and that, *at a minimum*, all students seeking a diploma be required to lay the foundations in the five new basics by taking the following curriculum during their four years of high school: (a) 4 years of English; (b) 3 years of mathematics; (c) 3 years of science; (d) 3 years of social studies; and (e) one-half year of computer science. For the college-bound, 2 years of foreign language in high school are strongly recommended in addition to those taken earlier. (p. 24)

Although only part of the recommendations from *A Nation at Risk* has presently been adopted, the report's influence on education will be long term. As can be seen, both math and English requirements have been increased and this is being felt in schools across the land. The result is that the elective courses including, all too often, vocational education have

dwindled in size, in number of course offerings, and in the ability of the student to complete *any* additional courses of an elective nature.

Wynn and Wynn (1988) stated,

> There has been a demand that schools get "back to basics" but disagreement about what *basics* kids should learn. Some would limit the curriculum largely to language skills, mathematics, science, and history. The Council for Basic Education would include the arts and humanities, foreign language, and social studies. (p. 260)

The foregoing quote would indicate little room for vocational education in a high school curriculum. Very possibly vocational education is fortunate that fifteen states have vocational education as a requirement for graduation. But the *basics* are not in competition with vocational education as pointed out in *Investing in our Children* (Committee for Economic Development, 1985):

> Basics do not compete with vocational skills; they help lay the foundations for all types of learning. Vocational instruction at the expense of quality instruction in the basics is a disservice to the students who participate in these programs.
>
> Individual programs have been successful in integrating the basics with occupational training, but these usually involve high-quality instructors who see this as a major objective of the program. Unfortunately, this is not a widespread practice. (p. 32)

Minorities, At-Risk Students, and Itinerant Populations

Minority students, itinerant students, and students who would be considered *at-risk* populations are a large and growing segment of our school population. At the present time, according to Hodgkinson (1986), Texas has forty-six percent; Arizona, thirty-three percent; New York, thirty-two percent; and Maryland, thirty-three percent minority students making up their school populations. Hodgkinson further stated that we are very close to having a *minority majority*.

Those students who may or may not be a minority race but who are in danger of being forced out of an educational program are also growing in number. In earlier years, these people were termed school dropouts. According to Hodgkinson (1986), virtually nothing is being done to keep students in school. If a student wants a high school diploma, he/she completes the General Education Development (GED) test, and is granted one. Schools may be so busy trying to increase Scholastic Achievement Test (SAT) scores of their students, trying to provide the increased educational requirements stressed by their state departments of education, and so busy developing new curricula, that at-risk students are increasingly being sidestepped from an appropriate education.

Providing vocational education for the so-called *itinerant* students is an increasingly serious problem across the nation. Itinerant students may be defined as students who move from locality to locality as their parents search for work or those students who withdraw from school because of well-paid jobs, only to return to school after the cyclical nature of their job has run its course. Itinerant and minority students increase the need for bilingual education.

Wynn and Wynn (1988) believed that too often the need of bilingual education is not met, and students then become at-risk parts of our educational population.

Minority groups could include, but not necessarily be limited to Hispanics, Asian and Pacific Islanders, Indians, Alaskans, native Americans, blacks, and the disadvantaged and handicapped. In many cases, particularly in the population centers of the nation, minorities become the majority school population.

Technology

It is evident that technology is entering every facet of education in the 1980s. Technology in the form of computers began to lead education at the beginning of the decade and continues to do so. Granted, the technology has changed greatly from the late 1970s. In 1979, much computer usage was generated by students writing their own programs. Now, software prepared by numerous companies is so good, so reliable, and so inexpensive, that students seldom write their own programs—the one exception being a class devoted specifically to computer programming. Now, some teachers are beginning to say that computer programming is no longer a necessity for the vocational student.

Boyer (1983) concluded the time has come "to take full advantage of the information revolution and link technology more effectively to teaching and learning in the schools" (p. 7). Truly, a landmark was reached in 1983 when *Time* magazine named the computer the *Machine of the Year.*

The computer is with education, particularly vocational education, to stay. Computers are used in business, marketing, agriculture, home economics, health, and trade and industrial education. They are used to program, to word process, to provide computer assisted design, to control and direct machinery, and to develop spreadsheets in all vocational areas.

E. J. Spiegelberg (personal correspondence, May 14, 1988) made the statement that "Technology has caused more changes in the business education curriculum than any other curriculum" (p. 1). She further stated,

> It is predicted that microcomputers will be faster, cheaper, smaller, and more powerful. It is recognized that an understanding of the computer--how it works and how it influences the daily lives of every citizen--is and will continue to be a necessary part of the education of every student.
>
> Changing technology is the major factor contributing to the urgent need for a reexamination of the mission and scope of business education. Technology is changing the conduct of the office, the competencies needed by those entering business, and the careers available to graduates of secondary schools.
>
> Currently, over half the total work force is employed in office information-related jobs. By the year 2000, it is predicted these jobs will expand to three-fourths of the total work force. Annually, more than one-half million job openings occur in the office information-related occupations. (p. 2)

Although these statements are addressed to business and office education, similar statements may be made regarding all vocational education areas.

Not strongly in support of the computer revolution, Goodlad (1984) maintained that while administrative use of computers was valid, excessive rhetoric regarding the computer as replacing teachers is not. The computer has not and is unlikely to replace the teacher in the classroom. He believed, however, that television will be used to teach and enrich the formal curriculum in educational institutions.

High technology is being effectively used by vocational education and with increased use has the potential to revolutionize vocational education.

Enrollment Changes

Vocational education enrollments are being affected by increased graduation requirements, minority students, technology, educational tracking, and current economic trends. "Since 1970, early childhood enrollments have grown markedly as preprimary programs have greatly increased," according to Wynn and Wynn (1988, p. 160). This enrollment is beginning to have an increasing effect on vocational education. According to Goodlad (1984), vocational education consistently ranks among the most liked subjects in which students enroll. The Gallup Poll (1984) noted that vocational education courses should be required of all students who do not plan to go to college. Vocational education enrollment trends lean towards

- students not planning to attend college,
- disadvantaged students who need marketable skills,
- certain physically handicapped students,
- minorities who wish to enter the work force as soon as possible or who have language barriers,
- adults entering schools for either training or retraining,
- students being sponsored for training or retraining by state or federal programs,
- students finding their original choice of academic career to have been a mistake for whatever reason,
- students being sidestepped from an appropriate education at either the secondary or postsecondary level,
- students wishing to train for jobs that society has presently available, and
- students whose interest in the vocational field has been a life-long interest.

All of these categories of individuals will influence enrollment changes in vocational education.

Tracking

Tracking places a student in a certain curriculum or track for their educational career. Basically, the tracking program follows: (a) an academic program, (b) a vocational program, or (c) another program. Tracking is often referred to as "ability grouping" (Wynn & Wynn, 1988, p. 188). According to Goodlad (1984), a majority of schools in the United States use some form of tracking for their educational curriculum. Goodlad believed tracking to be unfair as a disproportionately large percentage of white students are enrolled in academic areas while minority students are placed in low-level ability tracks. In both cases, a disproportionately large number of students appear in either the high level or low level track. Low ability students are often counseled into vocational education.

Tracking of educational programs is a worldwide phenomenon. Europe and Russia track their students with the students of higher ability going on to a university. Students of lesser ability are trained in vocational areas. But, what of the high ability students who choose vocational training? Or what of the lower ability students who, through hard work and desire, develop the academic ability to handle university studies? Tracking does not seem to be the best answer to educational training. But, ability grouping appears to be the only answer that education presently has to deal with the students' various abilities.

According to *Investing in Our Children* (Committee for Economic Development, 1985),

> On the other hand, vocational high schools that offer a general range of vocational subjects (as opposed to the occupationally specific programs of such schools as aviation high school) and most neighborhood comprehensive high schools are usually inferior. The reason these schools fail to prepare their students adequately for the job market is clear: both vocational schools and comprehensive high schools generally offer their vocational students inferior academic programs. (p. 34)

One of the greatest drawbacks of tracking is the unequal quality of the academic programs.

A World Marketplace

Vocational education has a large responsibility not only in training its graduates to enter the national market, but also in preparing its graduates for the world market. As Hubert Humphrey stated (as cited in Wynn & Wynn, 1988):

> Education is the keystone in the arch of democracy. Ignorance breeds only slavery. Enlightenment liberates the human mind and spirit. As a free people--as a democratic people--we must accept the moral obligation of providing the means whereby every American--regardless of race, color, religion, or income or educational achievement--has an equal opportunity for education and training limited only by his own capability and initiative.

Humphrey spoke for education, but certainly his sentiments apply to vocational education as well.

Vocational educators must contribute to improving the human condition both in the United States and worldwide. Vocational education graduates need to be trained to enter

the world stage, to compete, to improve the human condition, and to develop their own abilities to the fullest.

Goodlad (1984) stated that we need "to improve the economy and economic opportunity by raising the nation's supply of intelligence and skill" (p. 10). This is particularly necessary with the mobility of today's workers. Not only do they move across the nation in search of jobs, but they are entering the international job market. Vocational education must be competitive on a world-wide basis. As Evangelauf stated,

> Over the past years, a consensus has grown that America's competitiveness in the world depends, most importantly, on a well-educated work force, and that educating that work force will require restructured schools in which teachers are respected professionals with a voice in determining what they teach and how they teach it. (p. 326)

Implications for Vocational Teacher Preparation

Knowledge of Subject Matter

Knowledge of subject matter that teachers take into the field is not a problem. In the study reported later in this chapter, administrative satisfaction with the subject matter preparation of their teachers rated a 4.2 on a Likert scale of 5. Teacher education programs are another issue, as expressed by Boyer (1983):

> Some of the courses were interesting. But none of them really prepared me for that first day or even that first year. You walk into class and you're suddenly facing forty teenagers and it's a sink or swim situation. That's when I really began to learn to teach. Some of the other teachers gave me pointers. But mainly I was on my own. I've learned a lot in ten years about teaching, but it was on-the-job training. I won't say teacher education is a total waste of time, but it wasn't much help either. (p. 174)

Teacher education is often criticized for its teacher training and for its lack of real experience in classroom management—but not for knowledge of subject matter.

Technology

Teacher preparation in vocational education is not without its technological problems. Experienced educators find that returning to the classroom as students is difficult; they are, in some cases, therefore, resistant to staying up-to-date with today's technology. This problem may stem, in part, from those singular situations in all teacher education, not just vocational, mentioned by Wynn and Wynn (1988):

1. Most teacher education programs have not been selective in the admission of students.
2. Colleges and universities tend to reward professors who study teachers more than they reward the teacher of teachers.
3. Too many teacher training institutions do not have a close working relationship with school classrooms. (p. 57)

All too often teacher education institutions do not have the high technology equipment already available in the high schools, community colleges, or business. In far too many instances, equipment is provided for education, but not at the teacher education level.

Walker (1983) spoke of the educational potential of microcomputers:

1. Educational research has shown consistently that all learning is enhanced when students can do something with what they have learned. Computers tend to stimulate more active learning than a traditional classroom.
2. Computers interact with the learner.
3. Computers can be linked with light pens, joysticks, digitizers, or any other device that generates an electric signal.
4. Computers free the learner from such clerical jobs as searching library card catalogs, retyping drafts of papers, hand calculations, etc.
5. The computer lets us learn at a speed nearer the speed of thought.
6. Computers can deliver instructions tailored to the speed of the user.
7. Computers provide instant verification of all answers and help remedy mistakes.
8. Computers help users master abstractions and apply abstract thought to reality. (p. 104)

Technology is entering vocational teacher training and is being accepted by vocational teacher educators.

The Adult Student

Adults are returning to colleges and universities in increasing numbers. Vocational teacher education for adults is beginning to burgeon. Many community colleges have adult populations that far exceed the number of regular, full-time students. The number of persons returning to the college setting for a second career in education is far greater than that of only five years ago. Former career military personnel, housewives needing to supplement their income, young retirees, and people searching for satisfaction in their lives are returning to education. In many cases, they are entering vocational education. The future for adult education is indeed bright. Adult education is best defined by Wynn and Wynn (1988): "Adult education is any process by which men and women, alone or as a group, increase their knowledge, skill, and attitude" (p. 226). Adult education at less than the baccalaureate level may or may not involve schooling. However, schooling will be necessary for persons hoping to enter the teaching profession. As we age as a society, adult education will become more important with each passing year.

Increased Involvement by the Business Community

Business has become increasingly involved in education. From vocational advisory committees to donations to educational institutions, business has become involved. Wynn and Wynn (1988) stated:

> A significant new development has been the rapid growth of business-supported community foundations for public schools. Business leaders are realizing that the vitality of the schools in

their communities is important to the business community for several reasons. Consumers' spending power is directly related to the educational level of the consumers. (p. 339)

And further:

> Private corporations contribute in several ways to the support of education. Many corporations have established foundations that allocate gifts to education, charitable, civic, and religious enterprises. Total gifts to education in 1987 were estimated at $1.5 billion.
>
> In 1985, for example, the Carnegie Corporation established the Cranegie Forum on education and the economy, which brings together leading Americans to help chart the course for an educational policy that reflects a world economy transformed by science and technology and to educate Americans in such a way that they may participate effectively in the economy. (p. 339)

Business is involved in teacher education on both a national and worldwide basis.

The preceding portion of this chapter reflects changes which are taking place across the country. The following and final portion explains the changes taking part in the Midwest and shows how these changes are affecting public schools.

Selected Survey of Changes in the Midwest

The primary objective of this survey was to determine what factors are affecting vocational education and in turn vocational teacher education. The researchers developed a questionnaire based on the present and ongoing changes in the high school curriculum. The questionnaire was mailed to one hundred and twenty randomly selected high school administrators in Wyoming and the six border states, Montana, South Dakota, Colorado, Utah, Nebraska, and Idaho. The following findings and recommendations are based in part on those returns.

Findings

The questionnaire was returned by seventy of the one hundred and twenty schools for a fifty-eight percent response. Of the seventy returned, sixty-two were filled out by the high school principal. There was a wide range in enrollment size of the schools represented by the returns. To the question, *Do you anticipate changes in your high school curriculum*, the responses were evenly split (50% no and 50% yes). Table 1 contains a breakdown of those responding to the questionnaire.

Table 1

Size of Responding Schools

School Size Based on grades 9-12	*n*
Less than 50 students	8
51- 99 students	13
100-199 students	22
200-299 students	6
300- 399 students	7
400+ students	14

Note: $N = 70$.

The overwhelming majority of the schools in this sample were comprehensive high schools—115 out of 120 schools. The vocational programs most common to these schools were vocational agriculture, vocational home economics, and business education. Table 2 indicates, in rank order, administrative perceptions of the areas of competence of their vocational teachers.

Table 2

Administrator's Rating of Their Vocational Teachers

Area	Mean
Content area knowledge	4.20
Interaction with faculty and administration	3.98
Classroom management	3.88
Laboratory management	3.87
Professional involvement	3.86
Teaching	3.78
Technology awareness	3.65
Community and business involvement	3.58

Note: Based on a 5.0 scale

Teachers of vocational education appear to be evaluated as competent in the content area. The areas that appear most in need are technology awareness and community and business involvement. Both require some after-school time, possibly the cause for the lower ranking.

The majority of the schools, sixty-one of the seventy, indicated some method of curriculum tracking. Table 3 indicates the enrollment pattern for those schools.

Table 3
Student Enrollment by Curriculum Track

Curriculum	%
Academic	49
Vocational	27
General	24

The question that might be asked of those schools having a general curriculum is *What are these students prepared for when they graduate?* When these administrators were asked about the employment opportunities with growth potential in their local area for their graduates, only twenty-one (30%) indicated that opportunities were available. But, when asked about the locality for which their vocational students were being prepared, forty-eight administrators (68%) indicated the local area. Of the seventy respondents, fifty-one (73%) also indicated students were prepared for statewide jobs, twenty-nine (41%) indicated students were prepared for regional employment and only eleven (16%) indicated students were prepared for national opportunities. Students must be informed by their teachers, they must be inspired and made to understand that jobs and job satisfaction may not be in their own backyard.

The literature reviewed focused on dropout rates, minority increases, itinerant populations, and the returning adult learner. But, as shown in Table 4, the schools in this region appeared to be minimally affected by these forces.

Of the respondents that indicated a special population concern, only twenty-four (34%) have modified their curricula to help meet these needs. The literature review provided a basis for concern for increasing numbers of students. With the respondents, fifty-eight (82%) indicated they are maintaining enrollments, and of those, thirty (43%) are expecting an increase in students. When asked if they were testing their students for basic skills proficiency as a graduation requirement, forty-four (62%) indicated that they are.

Table 4
Categories of School Populations

Schools Affected	Special Factors
15	Itinerant workers
13	Dropout rates
12	Adults retraining for work force re-entry
6	Increased minorities

Note. $N = 70$

The last question on the questionnaire invoked more comments than any other. Administrators were asked if they are presently involved with any teacher education institution for the purpose of strengthening the skills of their vocational teachers. The overwhelming response was negative. Fifty schools (71%) were not working with a college or university. Many of these indicated that teacher educators are too far removed from the classroom and have little idea as to what the high school teachers are facing.

Recommendations

The recommendations determined as a result of this study are:

1. Teacher educators should continue to strive for the high quality and depth in the content area presently required of prospective teachers.

2. The importance of in-service education cannot be overly emphasized. It falls to teacher education to update teachers in the areas of new teaching techniques, technology, and changes in the content areas. Teacher educators must stress to teachers the importance of enrolling in worthwhile classes that will improve student performance, not just serve as course hours to raise educators on the pay schedule.

3. Prospective teachers need to be made awa re of the at-risk populations, the importance of community involvement, and the school practice of tracking students. All of these concerns should be dealt wi th in the undergraduate program and followed up with quality in-service programs.

4. As adult learners are a growing population, course work in undergraduate programs should reflect both present and future needs.

5. Teacher educators must work with teachers and prospective teachers to stress the importance of raising students' aspirations and preparing students to seek work away from their hometown.

6. Teacher educators need to spend more time in the public schools. It is up to teacher education to bridge the gap with the public school systems, not only with in-service activities but ongoing, continuous programs to improve teaching and learning.

References

Boyer, E. L. (1983). *High school.* New York: Harper and Row.

Carnegie Task Force on Teaching as a Profession. *A nation prepared: Teachers for the 21st century.* New York: Carnegie Corporation.

College Entrance Examination Board. (1983). *Academic preparation for college.* New York: Author.

Committee for Economic Development. (1985). *Investing in our children.* (Report on Business and the Public Schools). New York: Author.

Evangelauf, J. (1987, September 2). School reform drive spotlights colleges' education of teachers. *The Chronicle of Higher Education,* p. A-48.

Goodlad, J. I. (1984). *A place called school.* New York: McGraw-Hill.

Hodgkinson, H. (1986). *Guess who's coming to work?* Columbus: The Ohio State University, National Center for Research in Vocational Education.

Holmes Group, Inc. (1986). *Tomorrow's Teachers.* East Lansing, MI: Author.

National Commission on Excellence in Education. (1983). *A nation at risk.* Washington, DC: U. S. Government Printing Office.

Strickland, D. C., & Elson, D. E. (May, 1987). Graduate requirements and vocational enrollments. *The Phi Delta Kappan,* pp. 41-42.

Walker, D. F. (October, 1983). Reflections on the educational potential and limitations of microcomputers. *The Phi Delta Kappan,* pp. 103-107.

Wynn, R., & Wynn, J. L. (1988). *American education.* New York: Harper and Row.

Jack L. Rudolph, Jr., Ph.D., is an assistant professor, Agricultural Education, University of Wyoming, Laramie, Wyoming.

Betty C. Fry, Ed.D., is an associate professor, Business Education, University of Wyoming, Laramie, Wyoming.

Lowell Barr, Ph.D., is an associate professor, Business Education, University of Wyoming, Laramie, Wyoming.

Implications of Increasing Numbers of Nontraditional Students for Vocational Teacher Education Reform

Robert E. Nolan and William R. Venable

An attempt to define the nontraditional vocational student requires an examination of regional and national data to determine the extent of increased participation of nontraditional students in vocational education. How effective are the current responses to this changing population? What competencies will vocational educators need and what courses and programs will effectively meet their needs? This chapter examines these issues.

The Increase in Nontraditional Students

There is an important need to define which students are generally understood to be nontraditional. In the context of this chapter they are nontraditional by virtue of age or social role rather than by physical handicap. Two approaches apply: nontraditional by chronology or by method of institutional participation.

According to the U. S. Department of Education (1986), the definition of an adult or nontraditional student includes any 17-year old who is not a full-time student and who is enrolled part-time in some form of organized instruction. The problem with this definition is that it excludes a large group of those whom vocational educators recognize as nontraditional students: returning adult students who are enrolled full time in education or training programs.

Cross (1981) defined the nontraditional student as any student who would not be expected to participate in institutional forms of education (secondary or postsecondary) because of age. She identified this age grouping beginning at twenty-five or more years since in today's society, for economic or social reasons, traditional students are considered to be seventeen through twenty-four and involved in postsecondary education either full or part time. Cross's definition was based on her observation that many of today's traditional students are working to pay for postsecondary education and, consequently, often find it necessary to leave school for a semester or two to earn tuition. The problem with Cross' s well-conceptualized definition is that it is, again, chronological. Moreover, its point of view is directed toward postsecondary education, which historically has not been the emphasis of a traditional vocational education system.

Needed is a definition of the nontraditional student that is more explanatory and more operationally useful to vocational education. An approach from social perspective (rather than chronological) offers a safer solution. The socially based definition of a traditional student is a full-time student rather than a bread-winner, head of a household, parent, and spouse. Thus, defining a seventeen-year-old student who is a mother or father as nontraditional is more useful for vocational education, especially for the broad range of programs that labor and human service agencies have made possible.

From an acceptance of the social role as a determinant for use of the term *nontraditional*, next comes an examination of the nature of this population. It can be described in two ways: (a) in terms of the needs of the workplace and (b) in demographic terms. Both merit exploration to understand the extent of the opportunities these students present for vocational education.

First is a consideration of the student from the viewpoint of the workplace. Census data show that seventy-five percent of the work force for the year 2000 is already employed in the work force. Moreover, these workers will all need retraining by the 21st century (American Society for Training and Development, 1986). Why will they need retraining? First, business and industry are becoming increasingly aware of the importance of providing support for their human resource. "In the new information society, human capital has replaced dollar capital as the strategic resource" (Naisbitt & Aburdene, 1985, p. 4). Secondly, the workplace itself is changing at such a rapid pace that this human resource is of little value unless adequate training is provided.

William MacKinnon, Vice President for Personnel Administration at General Motors, observed:

> As product improvements in safety, emission, fuel economy, and performance become more complex, we and the [automobile] dealers become concerned about training people for skills that would make them equal to the challenge. The mission to increase their technical competence was never greater because the pace of technological change in our products was never greater. (National Advisory Council on Vocational Education and Training, 1984, p. 16)

Finally, the smaller youth labor pool of the 1990s will stimulate competition for qualified employees, as well as encourage growing corporations to rely more on training and retraining existing workers to ensure having the workers they will need to survive in a globally competitive market (American Society for Training and Development, 1986).

In an attempt to include all potential students in defining those who are nontraditional, a strong case can be made to include students from the lower age limits (e.g., the seventeen-year-olds fulfilling adult social roles). Yet, anyone remotely aware of current demographic trends should realize that the number of students at the lower ages are small when compared to the number who will need retraining. It is the twenty to forty-two-year-old group, spanning the eighteen-year period known as the *baby boom* generation, that is primary to a discussion of nontraditional students.

Evidence for Increased Participation

The U.S. Department of Education (1986) reported relevant statistics based on the 1984 Current Population Survey (CPS) that defined adult education as any course or organized educational activity taken part-time and reported as adult education by subjects seventeen and over. The survey, conducted in May 1984, included 58,000 households in all fifty states. Respondents to the CPS were first screened to see if they were eligible to be administered the adult education survey supplement. It is important to point out that full-time students were screened out of the survey unless they also took part-time adult education courses.

The survey revealed that the majority of participants (64%) were taking courses for job-related reasons, and many of those participants (48%) were taking courses to advance in their current jobs. People taking adult education classes for non-job-related reasons represented only thirty-five percent of the total survey responses. This means that of this sub-population engaged in education and training—a fraction of all adults thus engaged—the part-time adult learners were going to classes mainly for occupational reasons.

Contrary to expectations, ninety-two percent of these individuals completed high school, a disproportionate number in comparison to the seventy-three percent of the general population who had done so. In 1984 the largest group of these participants, segmented into ten-year ranges, were those from twenty-five to thirty-four. The twenty-five to forty-four year olds, however, accounted for fifty-nine percent of all those engaged in adult education. Extending the segment to include twenty-five to fifty-four year olds accounted for seventy-two percent of all adult learners, in contrast to the eighteen percent of all learners who fell into the seventeen to twenty-four group. What then are the characteristics of the nontraditional students? They are employed, high school graduates, between twenty-four and forty-four, and engaged in education or training for job-related reasons. Sixty-one percent of all participants fall within this range (U. S. Department of Education, 1986).

Thus the distribution of the adult population reinforces what has been projected about the effect of the baby boom generation on employee participation in the labor force. A larger number of mid-career (twenty-five to forty-four) and older (forty-five to fifty-four) employees will need retraining in the near future, especially in light of the shrinking pool of entry level workers (as cited in American Society for Training and Development, 1986). Clearly, the aging of the adult vocational student population has implications for vocational teacher preparation.

Addressing the needs of nontraditional students must start with an examination of statewide trends, such as those in Oklahoma and Illinois. In Oklahoma, although vocational education is institutionally a secondary system, adult enrollment has exceeded secondary enrollment since 1979. In fiscal year 1987, Oklahoma served 74,822 secondary age students in comparison to 221,552 adult vocational students, a thirty-six percent increase in adult enrollment over 1986 (Oklahoma State Department of Vocational Technical Education, 1987). In Illinois, the primary delivery system for adult vocational education is the comprehensive community college system. Illinois community colleges are experiencing increasing enrollments in special populations rather than in younger, traditional age students who typically pursue college transfer or occupational degrees. These special populations

include nontraditional age students enrolled in programs for dislocated workers and displaced homemakers and training for business and industry (as cited in Mason et al., 1986).

Current Responses to Increased Participation of Nontraditional Students in Vocational Education

Responses to the increased participation of adult students in vocational education varies by state. In Oklahoma, area vocational schools are the chief delivery system for serving these students. In Illinois, the comprehensive community colleges are the primary delivery system for vocational education for adults. In Wisconsin, the postsecondary technical institutes provide vocational education to adults. In all three states, adult enrollments are increasing while secondary enrollments are decreasing. Illinois community colleges generally are expanding their services, but not those for the traditional age transfer or occupational student. Since the Illinois funding formula for community colleges favors traditional occupational students who generate equally large numbers of full-time enrollments, some community colleges are experiencing monetary contractions (Kendall, 1988).

One of the possible responses to the increasing numbers of adult students needing vocational training is the mainstreaming of adults with secondary students. Oklahoma employs this strategy with mixed results. Of the 221,552 adults who were enrolled in vocational and technical education in Oklahoma in 1987, some 10,174 were full-time students mainstreamed with the daytime secondary students. Frequent complaints from adults taking classes with secondary students at comprehensive schools or area vocational schools included inconvenient schedules and insufficient time spent on practicing required skills. Often adult students participating in Oklahoma vocational programs asked for longer class hours (Oklahoma State Department of Vocational Technical Education, 1987). In Illinois adult students are mainstreamed with traditional postsecondary students. The average age of students in Illinois community colleges is now 31.3, with a median age of 27.4, which has actually remained stable since 1983 (Illinois Community College Board, 1988).

Another often practiced response to the increasing enrollment of adults in vocational education is to segregate instruction for different age groups, allowing the secondary students to have their classes scheduled around a standard daytime high school semester. Adult students then either enroll in segregated, short-term day classes or in evening classes that are either a semester long or a shorter term. In Oklahoma, as in Illinois and Wisconsin, the vast majority of adult enrollments are in courses designed exclusively for them either in part-time evening formats or as customized seminars or workshops. Only five percent of all adult enrollments in Oklahoma follows the mainstreaming model of mixing adults with secondary students in full-time day programs (Oklahoma State Department of Vocational and Technical Education, 1987).

The reality, then, has been a marked shift in service populations in vocational education in many states from one of primarily serving secondary age learners in the 1960s to that of serving adult age learners in the 1980s. In view of this shift in demographics, it is ironic that vocational teacher preparation programs do not put more emphasis on adult education coursework. In a recent survey of vocational teacher educators from thirty-six major ur[illegible]er-

sities, Knight (1987) queried two hundred and forty-seven faculty representing eight vocational disciplines. When asked to rank order courses they considered important to their professional careers, the one hundred and twenty-two who responded (49%) ranked courses in adult education as relatively unimportant (exact rankings follow).

Required Competencies for Instructing Adult Students in Vocational and Technical Programs

Knight's survey (1987), mentioned above, identified the thirty-six vocational teacher education institutions that met the following criteria: (a) they grant the doctoral degree, and (b) they include within their graduate programs five or more vocational disciplines. His survey revealed that vocational teacher educators do not yet perceive the need for formal graduate level work in adult education as preparation for meeting the vocational education needs of the nontraditional, adult student population. For example, coordinators (N = 36) of those graduate programs did not list any courses related to either the methodology of teaching adults or the psychology of adult learners as being required courses for their respective programs.

In a separate section of the same study, one hundred and twenty-two teacher educators rank ordered courses that were most beneficial to their teaching careers. Courses in research techniques headed the list, followed by those in curriculum and methods of teaching. Courses related to adult learners were ranked twenty-third out of thirty in importance. The same sample of one hundred and twenty-two professors of vocational education were asked to rank order courses that should be required for vocational teacher educators. Research, curriculum, and methods again headed the list of desired courses. Courses related to adult learners were ranked fifteenth out of twenty-four in importance (Knight, 1987).

Despite the perceptions of faculties of vocational education, as seen in the Knight study, adult students are increasingly becoming the primary service population for vocational education. To summarize the findings of Knight (1987), vocational teachers are not being specifically prepared to deal with adult students through coursework or directed experiences by any of the thirty-six vocational teacher training programs surveyed. Nor do the one hundred and twenty-two vocational teacher educators surveyed place high importance on courses in adult learning and development. Finally, teacher educators do not consider adult education courses to have been very helpful in their own careers (Knight, 1987).

If the trend in teacher education as Knight (1987) described it continues, four instructional competencies are essential for today's vocational teachers:

1. Vocational teachers need to know something about the psychology of adult learners.

2. They need to know how they can more effectively diagnose the learning needs of adult students.

3. They need to know how instruction is best individualized, as well as how to capitalize on adults' self-direction in learning.

4. They need to know how to become facilitators of learning rather than teachers per se (Knowles, 1984).

If vocational teachers graduating from institutions of higher education know little about the process of adult learning, then education and training by business and industry in the workplace may supplant traditional vocational education services. If, on the other hand, vocational educators begin to respond to the changing population by learning more about their new students, then new partnerships between vocational education and business and industry may train tomorrow's work force.

Implications for Vocational Teacher Education Reform

Teacher education reform will become a reality whether or not vocational teacher educators choose to participate. One area of such reform that may not be on the agenda of the Holmes Group (1986) or the Carnegie Task Force (1986) is the introduction of new courses into the curricula of professional schools of education. Faculty in higher education institutions need to be prepared for the nontraditional students returning to school for retraining.

Minimal academic preparation involves two content areas: human development and teaching methodology for adult learners. For the first, in addition to the adolescent psychology or more general educational psychology usually included within teacher preparation courses, future teachers must become knowledgeable about adult development and the psychology of adult learners. The second content area grows out of the first—methods of teaching adults. Much new information now exists in the areas of training, group facilitation, and counseling of adults; vocational teacher educators must begin to incorporate these ideas in the formal preparation of future vocational teachers.

Beyond the formal academic approaches to prepare vocational teachers who will teach adult students more needs to be done in designing effective internship experiences in which future teachers work with adult groups. Students can assist faculty in conducting inservice experiences for practicing teachers. Students, usually graduate students, can be placed with training departments in business and industry.

As an example, in 1984 the authors participated in an international training project involving four graduate students who traveled to Costa Rica to work in a short-term training program for bank tellers. Of the four students, only one had any prior coursework in adult education. An intensive forty-hour preservice training program was required prior to the internship. The experience itself was closely supervised, with daily debriefing sessions in which problems were identified. The group then developed solutions under the direction of a skilled trainer.

The courses presently required for certification in vocational education in most states do not emphasize the special knowledge and skills necessary for working with adults, except in rare cases where vocational agriculture and home economics students have exposure to methods courses in cooperative extension. In the states where the authors have knowledge of certification requirements, they describe the preparation of secondary vocational teachers with no reference to the aging client population or to nontraditional students.

There is, of course, the related issue of vocational educators who have been practitioners for some time. They are now teaching adults at many sites throughout the nation. Many of them are intuitively using instructional techniques recommended in the literature. Others are not. It is the obligation of state departments and graduate programs in vocational education to provide these practitioners with inservice activities, which can update them in effectively addressing the needs of adult populations.

Finally, there is a *service center* model that many states have successfully developed and implemented. This model establishes a focus for professional development activities throughout a given state so that practitioners have resources relatively close at hand. Service center staff are often practitioners and may not be members of the state departments or university faculties. Adult service centers establish a network among teachers in a given area where they are able to bring in experts and discuss issues related to adult education. These centers can identify exemplary teachers and often have valuable contacts at the state and national levels. This model may be useful for retraining those vocational teachers whose formal preparation was oriented to the secondary age or traditional vocational student.

Several factors point to an impending crisis in meeting the needs of adult vocational students. First, there are more adult than secondary age vocational students in many states throughout the country. (In Oklahoma, the adult students have been the majority for nearly ten years and today outnumber their younger counterparts by a margin of three to one.) Second, vocational teacher education programs usually do not require coursework or directed experiences related to adult learning. Third, vocational teacher educators place a relatively low value on such courses for themselves and their vocational teacher students. And fourth, the effective teaching of adults requires an understanding of how adults learn best.

Vocational teacher educators must address the needs of adult populations or risk preparing vocational teachers who are not responsive to the current education and training needs of their clientele. The nontraditional adult student is no longer the exception, but rather the norm.

References

American Society for Training and Development (1986). *Serving the new corporation.* Arlington, VA: Author.

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century* (Report of the Carnegie Task Force on Teaching as a Profession). Washington, DC: Carnegie Corporation.

Cross, K. P. (1981). *Adults as learners: Increasing participation and facilitating learning.* San Francisco: Jossey Bass.

Holmes Group. (1986). *Tomorrow's teachers.* East Lansing, MI: Author.

Illinois Community College Board. (1988, May). *Illinois Community College System: Data and characteristics.* Springfield, IL: Author.

Kendall, P. (1988, April 18). Staff offered plan to cut costs. *Chicago Tribune*, Chicagoland Section, p. I.

Knight, C. (1987, December). *Educating the vocational teacher educator.* Paper presented at the National Conference of the American Vocational Association, Las Vegas, Nevada.

Knowles, M. (1984). *The adult learner: A neglected species*, 3rd ed. Houston: Gulf.

Mason, R., Nolan, R., Roth, G., Gadsen, W., Smith, K., Niemi, J. A., Smith, R. W., Simpson, E., Wang, J. P., & Grotelueschen, A. (1986). *An assessment of the impact of adult education area planning councils in Illinois.* [Final Report]. Office of Research and Evaluation, Northern Illinois University, DeKalb, Illinois.

Naisbitt, J., & Aburdene, P. (1985). *Reinventng the corporation: Transforming your job and your company for the new information society.* New York: Warner.

National Advisory Council on Vocational Education. (1984, March). *Vocational education and training policy for today and tomorrow: Summary report.* Washington, DC: Office of Vocational and Adult Education. (ERIC Document Reproduction Service No. ED 250 502)

Oklahoma State Department of Vocational and Technical Education. (1987). *Fact sheet information on vocational and technical education—July 1, 1986 to June 30, 1987.* Oklahoma City: Publications Clearinghouse of the Oklahoma Department of Libraries.

U. S. Department of Education. (1986). *Bulletin of the office of educational research and improvement.* (CS 86-3086). Washington, DC: Center for Educational Statistics.

Robert E. Nolan, Ed.D., is an assistant professor, Adult Education, at the School of Occupational and Adult Education, Oklahoma State University, Stillwater, Oklahoma.

William R. Veneable, Ph.D., is an associate professor, Human Resource Development, at the School of Occupational and Adult Education, Oklahoma State University, Stillwater, Oklahoma.

The Place of Training and Development in Vocational Teacher Education: A Strategic Opportunity?

James A. Leach and Dale T. Snauwaert

The current excellence reform movement was launched with the publication of *A Nation at Risk* (The National Commission on Excellence in Education, 1983). The essence of the report was the view that the United States is in the process of losing its dominance in the world economy and that the education and training of the next generation of the work force must achieve a level of excellence if the U.S. is to regain its economic dominance. Curiously enough, with this focus on economic competitiveness, little, if anything, was said about the reform of vocational education (Adams, Pratzner, Anderson, Zimmerer, 1987). In an attempt to fill this void, while staying within the general focus of excellence, the National Commission on Secondary Vocational Education was formed in 1984. Their report, *The Unfinished Agenda* (National Commission on Secondary Education, 1984), proposed a general reform of vocational education.

What unites these two reports, as well as the hundreds of additional reform proposals, is the focus on excellence (Gross & Gross, 1985). However, the concept of excellence has been conceived so broadly that it encompasses the entire educational spectrum. As the reform movement has matured, it has achieved a number of narrower foci; one such focus is on the reform of teacher education. This focus and the corresponding discussion have been shaped largely by the Holmes Group (1986) and the Carnegie Forum on Education and the Economy (1986). This narrower focus is based upon the argument that real reform is baseless without improving teacher quality (Bush, 1987; Smith, 1987). Although neither the Holmes Group nor the Carnegie Forum mentioned vocational teacher education, teacher education is becoming the focus of the vocational education profession (e.g., Adams et al., 1987; Finch, 1987; Hughes, 1987; Lee, 1987; Policies Commission for Business and Economic Education, 1987; Smith, 1987; Zellner & Parrish, 1986).

The situation is undeniably one that deserves the attention of the best vocational teacher educators in the nation. It is a situation to which the field must react. However, it also presents an opportunity for the field of vocational education to take a proactive stance and shape its future in new and expanded ways for the coming decades.

In *Strategic Human Resources Planning and Management*, Rothwell and Kazanas (1988) described strategic management in a way useful for both practitioners and academicians. The word *strategy* means general in Greek and in a military sense "involves the planning and directing of battles or campaigns on a broad scale" (Steiss, 1985, p. 7). It differs

from tactics, which are more limited planning for purposes of achieving immediate objectives. Strategy connotes "large scale, future-oriented" plans for interacting with the competitive environment to optimize achievement of organizational objectives" (Pearce & Robinson, 1985, p. 6). Strategic issues involve allocation of organizational resources, they exert significant influence on the organization's success or survival, they focus on anticipating the future, and they require consideration of the world outside organizational boundaries (Pearce & Robinson, 1985).

In *Academic Strategy*, Keller (1983) proposed the use of strategic planning and management in higher education. He argued that in order to meet the challenges of the 1980s and 1990s (e.g., declining enrollments, increased costs, and decreased funding), higher education institutions must adopt a strategic posture. In essence, this posture would stress recognition of important social, economic, political, and technological trends, accompanied by internal, long-range planning to respond to those trends. It would stress the need for proactive rather than reactive management. Keller (1983) argued that for strategic management to work in higher education, it cannot be confined to high-level planning bodies, but must become a part of the *planning culture* of every department and a way of thinking of every department chairperson.

The purpose of this chapter is to apply this strategic perspective to vocational teacher education reform by providing a preliminary analysis of a somewhat neglected trend: private sector demand for training professionals and the corresponding interest of increasing number of students to pursue careers in private-sector training and development. This analysis consists of four phases: (a) documentation of the demand for training professionals in the private sector; (b) examination of the formal preparation and background of training and development professionals, including the extent to which vocational teacher education students are pursuing careers in the training and development field; (c) examination of the extent to which this trend is being considered in vocational teacher education reform, and (d) preliminary discussion of policy implications for vocational teacher education reform.

In place in this country are several formal systems that deliver employment related education and training. Among these are labor-union apprenticeship programs, the military, proprietary schools, community-based organizations, public-school vocational education (secondary and postsecondary), and business and industry. Graduates of vocational teacher education programs are no doubt represented in each of these systems. However, by and large graduates of vocational teacher education programs are employed predominantly in the public school vocational education system. It will be argued that there exists a large and increasing demand for training and development professionals in the private sector. This demand represents a strategic opportunity for vocational teacher education departments across the nation.

Private Sector Demand for Training and Development Professionals

Corporate education, training, and development is a booming industry. It is arguably the largest provider of adult education in the United States. An estimated 30-40 billion dollars are spent annually on formal training in business and industry, equalling the amount spent on education in our colleges and universities (Eurich, 1985). About one-third of the labor force, approximately 36.5 million adults, receive some type of formal training in business and industry each year, with approximately 1.3 billion hours being spent annually in corporate classrooms (Gordon, 1986). Corporate education is undeniably a huge enterprise with expansion expected to continue unabated. Employer investment in training and development is projected to increase twenty-five to thirty percent by 1990 (Galagan, 1987). Considering that approximately seventy-two percent of the costs of corporate education are associated with training staff salaries (Feuer, 1986; Geber, 1987), it may be inferred that the expansion of expenditures in corporate education will include a concomitant increase in the demand for training and development professionals.

Underlying this growth of corporate education is the increasing awareness and recognition that human resources are an organization's most valuable asset (Feuer, 1986). Unlike most assets, human resources have almost unlimited appreciation potential. Increased investment in human resources is not driven by corporate altruism; corporations have been forced as a result of many factors, in many cases reluctantly, to provide employee education (Eurich, 1985). The most prominent of these factors are (a) rapid technological change, (b) global competition, and (c) demographic/labor market shifts.

Rapid Technological Change

In the history of American industry, there has been a cyclical trend of technological change and educational retooling (Eurich, 1985). However, the lead time between technological discovery and application has been remarkably reduced in the last thirty years (Martel, 1986). The shortened lead time has increased the gap between the knowledge and skill inventory of the work force and the knowledge and skill requirements of the new technology, resulting in a large demand for training and development. In addition, rapid technological change has caused significant worker displacement and an accompanying need for retraining. Without a doubt, rapid technological change has been a potent force driving the expansion of corporate education (Eurich, 1985; Galagan, 1987). Anticipating new and emerging skill requirements is particularly difficult since they do not appear in past employment trends and are not identified by traditional forecasting techniques. Although schools can provide skill training once skills have become more generalized and transferable, they cannot possibly prepare workers for emerging skill needs as they initially arise (Flynn, 1988). Therefore, employer sponsored training will remain a critical counterpart to technological advancement.

Global Competition

Economic growth in the United States in the one hundred years between the end of the Civil War and the beginning of the Vietnam War was dramatic and continuous. However, much of this growth was dependent on exploitation of a continental market. The world economy has since become increasingly integrated. In the past fifteen years, United States dominance of the world economy has slipped. Competition from numerous quarters (e.g., Japan, West Germany, South Korea, and Hong Kong) for markets, resources, technologies, and productive workers has greatly increased to the point where declarations of national crisis have been commonplace (Galagan, 1987). U.S. corporations have recognized that they are losing their grip on the privileged position they once occupied in the world economy. Their solution, among others (e.g. increased investments in plant and equipment and research and development), is to intensify their investment in human capital. There is a recognized need to develop the skill level of the work force to achieve greater productivity (Galagan, 1987) and thus greater competitiveness.

Only a few factors are of generic importance to a nation's economic performance; one such factor is labor (Striner, 1981). Building and maintaining an up-to-date labor force are essential for a technology oriented nation. American business and industry leaders are fully recognizing the relationship between training (managerial and worker) and productivity rates and world competitiveness.

Demographic and Labor Market Shifts

Major demographic changes in the labor force are forcing American business and industry to increase investments in training and development. One such change is the widening gap between the educated and the undereducated segments of the U.S. work force (Eurich, 1985; Galagan, 1987). By 1990, nearly eighteen percent of the work force will be college graduates while twenty-three million adults will be functionally illiterate. Widespread adult and youth illiteracy, coupled with a dwindling entry-level labor supply, has forced many corporations to provide extensive basic skills programs to entry level employees. A critical report, *Basic Skills in the U.S. Work Force* (Henry & Raymond, 1983), found that seventy-five percent of the one hundred and eighty-four corporations surveyed carry on some type of basic skills program within their companies for employees (Center for Public Resources, 1983).

In addition, the work force has become increasingly mobile. Approximately one-third of the labor force changes jobs each year (Naisbitt & Aburdene, 1985). To attract and retain employees in the face of labor shortages, corporations are being forced to make careers in their organizations more appealing. One approach being used, in addition to other incentives, is to provide extensive educational opportunities for career as well as personal development (Naisbitt & Aburdene, 1985).

In summary, rapid technological change, global competition, and demographic and labor market shifts have been, and probably will continue to be, the driving forces behind the expansion of private sector business and industry training and development.

The demand for corporate education and training exists. The question that confronts the field of vocational education is, Does this demand represent a strategic opportunity for vocational teacher education? Answering this question requires an examination of where the training and development professionals are coming from and to what extent vocational teacher education graduates are pursuing this career option. In addition, the extent to which current thinking about the reform of vocational teacher education has addressed this issue and the policy implications for vocational teacher education must be examined.

Formal Preparation and Backgrounds of Training and Development Professionals

Where the Trainers Are Coming From

An article in *Training* reported that trainers primarily receive bachelor's degrees in education (17.6%), business and management (16%), social sciences (14.7%), and psychology (10.8%). As of 1985, only two percent received bachelor's degrees in human resources development or training and development (Lee, 1985). Trainers primarily receive graduate degrees (41% have master's degrees and 13% have doctorates) (McCullough, 1987) in education (31.6%), business (18.6%), psychology (10.4%), and social sciences (6.7%) (Lee, 1985). The *American Society for Training and Development Directory of Academic Programs* (ASTD, 1985) lists thirty institutions of higher learning as offering programs in training and development, most of which are relatively new.

As far as prior experience is concerned, 27.2% of current trainers had held supervisory or management positions, 21.7% had held technical or professional positions, 17.3% had been teachers, 11.7% had held personnel positions, and 7.2% had been in sales (Lee, 1985). An ASTD membership survey found a similar breakdown, except that 24% of the respondents had held teaching positions prior to their career in training and development (cited in McCullough, 1987). From these survey results, it is apparent that entry into the training and development profession occurs through a variety of educational and occupational paths, teacher education and practice being a primary one.

Vocational education has been called upon in many ways to forge partnerships with business and industry and other training systems in an effort to provide effective education and training for both today's and tomorrow's workers. To some extent, university departments of vocational education have been involved with the field of training and development for a number of years. Many graduates have gained employment and pursued careers in an educational role in the private sector. Others have served as advisors or consultants for education and training programs in business and industry. Numerous research and service activities, although intended primarily for public school audiences, have had at least an indirect impact on the field of training and development. However, the role of preparing professional personnel for training and development positions in business and industry appears to be expanding and becoming much more formal.

As part of this preliminary analysis, department chairs/heads from the member institutions of the University Council for Vocational Education were surveyed by telephone interview in March, 1988, to provide approximations regarding enrollments and perceptions related to this trend (Leach, 1988). Representatives from eighteen of the nineteen institutions responded.

Eleven of the institutions currently have designated training and development programs; six are either preparing proposals or have submitted proposals for such a program. In a few cases, the program proposals have been denied or failed due to internal struggles regarding where such a program should be housed. Of the training and development programs currently in place, five are at the graduate level only, four are at both the graduate and undergraduate levels, and two are at the undergraduate level only. Most of these programs are relatively new with over half of them being established four years ago or less. At the majority of the institutions, there are more graduate than undergraduate students in the programs.

In addition to students who are enrolled in designated training and development programs, there are large numbers of students who express an interest in the training and development field but who are enrolled in traditional vocational areas. Respondents from the institutions surveyed indicated that as many as one-fourth to one-half of their students seem to be interested in the training and development field. The respondents indicated that it is difficult to assess exactly where their students are employed after graduation and the responses varied widely among the institutions. However, there was general agreement that large numbers (a majority in some cases) of vocational teacher education graduates are entering the training and development field in private business and industry and that many more are leaving the teaching field after a short period of time for positions in the private sector.

Given the private sector demand for training and development professionals and the extent to which graduates of vocational teacher education programs are either expressing interest in or actually entering the field, it is logical to assume that this trend has been a major point of focus in the reform of vocational teacher education.

The Place of Training and Development in the Reform Discussion

With this background in mind, we can return to the main question: Has private sector demand for training and development professionals and the corresponding interest in the field on the part of students in vocational teacher education programs been considered in the reform of vocational teacher education? In all, there has been limited consideration.

Adams et al. suggested that the preparation of vocational education and training specialists for business and industry is an expanding new market and that while considering vocational teacher education reform, emphasis must be given to the development of "comprehensive train-the-trainer programs" (1987, p. 27).

Lloyd (1987) argued that the vocational education profession needs to expand its traditional relationship with industry by becoming more involved in meeting the expanding needs for training in the private sector. He saw training in the private sector as a major new market for vocational education, although he did not explicitly advocate the training of trainers as a legitimate function of vocational teacher education.

Most department chairs/heads of the University Council for Vocational Education indicated that teacher education reforms (based primarily on the Holmes Group tenets) are currently being discussed or initiated, and, in two cases, the reforms are already in place. However, regarding whether vocational teacher education reform proposals should address the preparation of students for training and development positions in the private sector, there is less consistency. Eleven respondents indicated that the reform proposals should address the preparation of students for training positions in business and industry. Several respondents suggested that a potential student base is missed by not including training and development in the reform proposals. In some cases, the point was made that by not including training and development as part of the reshaping and rethinking of vocational education, the existence of the entire field may be in jeopardy (at least in the short run). Others indicated that they believe the division between the teacher certification programs and non-public school education programs is becoming blurred and converging. On the other hand, seven respondents indicated that the reform proposals should not address the preparation of students for training positions in the private sector. Although most expressed a belief that training and development is becoming more central to the mission of vocational education, they are of the opinion that teacher certification and noncertification programs should remain separate.

As the teacher education reform movement gathers momentum, attention to vocational teacher education reform will undoubtedly increase. The issue of whether or not to broaden the mission of vocational teacher education programs to include the preparation of private sector training professionals warrants an examination of several policy implications.

Preliminary Discussion of Policy Implications

There is little question that human resource development, including the training and development function, is an emerging and increasingly important field. However, the extent to which it falls into the domain of vocational teacher education is not clear. Nadler (1983) has suggested that increased attention by business and industry to the human resource development function will require that practitioners in the field improve their competencies. He predicted, however, that until there is agreement on what body of knowledge constitutes the field there would be little advancement in increasing the competence of practitioners. Nadler further predicted that when agreement does come, higher education institutions would undoubtedly have a significant influence with the development of sound academic programs.

Knowledge and Skill Base

There is some indication that the training and development field has matured to the point where there is some agreement on the body of knowledge that constitutes the field and the competencies required of its practitioners. In probably the most significant study to date, the American Society for Training and Development (ASTD) defined training and development as "identifying, assessing, and through planned learning, helping develop the key competencies which enable people to perform current or future jobs" (ASTD, 1983, p. 25). The study described fifteen key roles or functions of the training and development professional and delineated the competencies required to perform these roles. Although there remains a great deal of work to be done in refining, adapting, and revising these roles and accompanying competencies, there appears to be general acceptance and agreement that the body of knowledge has been identified.

Assuming that the time is right for increasing involvement in the field on the part of higher education institutions, questions remain regarding where such academic programs will be housed and what types of contributions they will make. Given the evolving nature of the field, there is little question of a continuous need for research and development activities. By and large, the private sector is not interested in spending limited resources on the conduct of research related to training and development. Yet research of this type falls within the legitimate domain of colleges of education, particularly vocational education departments. Similarly, if one accepts that the broad mission of vocational education is to improve education and training for and about work in any setting, then the preparation of practitioners for the field is not only legitimate but central.

Certification

Along with the difficulty in identifying an agreed upon body of knowledge that comprises the field of training and development has been a corresponding interest in some type of certification for training and development practitioners. In an attempt to develop a consistent level of competence among training personnel, many firms have developed their own training programs that require minimum standards be met prior to certifying staff members as trainers. Again, business and industry is making this investment because it has to, not necessarily because it wants to. The time is ripe for meeting this need and cultivating this market. The training and development field needs the leadership that can come from the vocational education departments of major universities. Working within the general parameters of successful vocational teacher education models and with counsel from private-sector advisory boards, vocational teacher education departments can help to define the professional standards for entry into the training and development field and develop mechanisms for promoting excellence. In the jargon of private industry, major vocational teacher education programs can assume leadership in assuring quality control.

If vocational teacher education departments take on the expanded role of preparing professionals for training and development positions in business and industry, two questions come immediately to mind. First, to what extent is the nature of teacher education programs (e.g., content of courses and practice teaching) similar to that required of individuals

preparing for entry-level training positions in business and industry and where there is overlap, is it appropriate to mix these two student groups? Second, to what extent are current vocational teacher educators prepared for and willing to work with this new student group?

Of those departments surveyed that house training and development programs, three reported that students enrolled in training and development and those enrolled in vocational teacher education programs take the same courses. Four departments reported that the two groups take different courses, and six departments reported that both groups take several of the same courses while taking different specialty courses within training and development or within teacher education. These data suggest that there is presently a considerable overlap in course offerings between training and development and vocational teacher education.

Of those departments surveyed that house training and development programs, in all cases the faculty who teach vocational teacher education courses also teach training and development courses. Five respondents suggested that in order to have a viable training and development program, faculty members need to have experience in corporate training and development.

By formally expanding the mission of vocational teacher education, formal partnerships and linkages with other departments and colleges on university campuses will likely occur (business, labor and industrial relations, industrial psychology, and others). Although this appears to be beneficial, there is the danger of spreading too thin. Of course, this linkage is contingent upon the body of knowledge that constitutes training and development. If the core of training and development is defined in terms of learning processes, then professional preparation in the field belongs in a college of education with minor linkages to other relevant disciplines. The danger arises when training and development is not clearly defined.

Even if viewed as a short-term measure to bolster the field during the next ten years or so until the next reform movement comes along, taking on the role of preparing training and development professionals represents, without question, a strategic opportunity. What remains to be seen is whether the field of vocational education will capitalize on this opportunity or leave it to others.

References

Adams, D. A., Pratzner, F. C., Anderson, H. B., & Zimmerer, M. E. (1987). Vocational teacher education in an era of change. *Vocational Education Journal, 62* (4), 24-27.

American Society for Training and Development. (1985). *Directory of academic programs.* Washington, DC: Author.

American Society for Training and Development. (1983). *Models for excellence.* Washington, DC: Author.

Bush, R. N. (1987). Teacher education reform: Lessons from the past half century. *Journal of Teacher Education, 38* (3), 13-19.

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century.* New York: Carnegie Corporation.

Eurich, N. P. (1985). *Corporate classrooms.* Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.

Feuer, D. (1986). Training budgets. *Training, 23* (10), 32-43.

Finch, C. R. (1987). Questions raised by the reports. *Vocational Education Journal, 62* (4), 29-30.

Flynn, P. M. (1988). *Facilitating technological change: The human resource challenge.* Cambridge, MA: Ballinger.

Galagan, P. (1987). Here's the situation. *Training and Development Journal, 41* (7), 20-22.

Geber, B. (1987). Training budgets still healthy. *Training, 24* (10), 39-58.

Gordon, J. (1986). Where the training goes. *Training, 23* (10), 49-62.

Gross, B., & Gross, R. (1985). *The great school debate.* New York: Simon & Schuster.

Henry, J. F., & Raymond, S. (1983). *Basic skills in the U.S. work force: The contrasting perceptions of business, labor and public education.* New York: The Center for Public Resources.

Holmes Group. (1986) *Tomorrow's teachers.* East Lansing, MI: Author.

Hughes, R. P. (1987). The Holmes group report. *Vocational Education Journal, 62* (4), 29.

Keller, G. (1983). *Academic strategy: The management revolution in American higher education.* Baltimore: John Hopkins University Press.

Lee, C. (1985). Trainers' careers. *Training, 22* (11), 75-76.

Lee, J. S. (1987). Coping with reform. *Vocational Education Journal, 62* (4), 30.

Lloyd, J. H. (1987). The opportunity of private sector training. *Vocational Education Journal, 62* (3), 20-22.

Martel, L. (1986). *Mastering change.* New York: Mentor.

McCullough, R. C. (1987). Professional development. In R. L. Craig (Ed.), *Training and development handbook* (pp. 35-64). New York: McGraw-Hill.

Nadler, L. (1983). *Human resource development: The perspective of business and industry.* Columbus: The Ohio State University, National Center for Research in Vocational Education.

Naisbitt, J., & Aburdene, P. (1985). *Reinventing the corporation.* New York: Warner Books.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC: Government Printing Office.

National Commission on Secondary Vocational Education. (1985). *The unfinished agenda.* Columbus: The Ohio State University, National Center for Research in Vocational Education.

Pearce, J., & Robinson, Jr., R. (1985). *Strategic management: Strategy formulation and implementation* (2nd ed.). Homewood, IL: Richard D. Irwin.

Policies Commission for Business and Economic Education. (1987, October). Business teacher education: A commitment to excellence. *Business Education Forum*, 10-12.

Rothwell, W. J., & Kazanas, H. C. (1988). *Strategic human resources planning and management.* Englewood Cliffs, NJ: Prentice-Hall.

Smith, C. W. (1987). The emergence of educational reform. *Vocational Education Journal, 62* (4), 28.

Steiss, A. (1985). *Strategic management and organizational decision making.* Lexington, MA: D. C. Heath.

Striner, H. E. (1981). *The reindustrialization of the United States: Implications for Vocational Education Research and Development* (Occasional Paper No. 71). Columbus: The Ohio State University, National Center for Research in Vocational Education.

Zellner, R. D., & Parrish, L. H. (1986). Critical issues in vocational teacher education. *Vocational Education Journal, 61* (2), 39-40.

James A. Leach, Ph.D., is an associate professor and the Director of the Training and Development Program, Department of Vocational Technical Education, University of Illinois at Urbana-Champaign.

Dale T. Snauwaert, M.S., is a doctoral candidate, Department of Education Policy Studies, College of Education, University of Illinois at Urbana-Champaign.

Influencing Vocational Teacher Education Policy Through Research

Richard L. Lynch

This chapter presents contemporary teacher education reform within a policy context; encourages policymakers to include vocational education in future policy action; incorporates a derivative review of eight areas of needed research in vocational teacher education within a context of policy reform; and calls for establishing a national research center to investigate crucial questions relative to vocational teaching and vocational teacher education.

Current Teacher Education Reform in a Policy Context

Significant policy changes affecting teacher education are no longer suppositions; they are indeed fact. In virtually every state, some form of policy reform has occurred, affecting the way in which teachers in this country are trained, credentialed, inducted, compensated, and evaluated. In nearly half of the states, state legislative action (over one thousand pieces) mandated the reforms; in others, the states' boards of education were the primary impetus. The result is that forty-six states have mandated teacher competency tests in basic skills, subject matter, and/or professional knowledge as a requirement for admission into teacher education, for certification, or for both; twenty-seven states have stiffened the requirements for admission into college or university teacher education programs; thirty-two states have revised the curriculum for students who plan to become teachers; twenty-three states have developed *alternative* procedures for certification; and a few have abolished, or tried to abolish, undergraduate education degrees altogether (Darling-Hammond & Berry, 1988).

Once employed as teachers at a national average salary of $17,800, most new hires will probably be required to participate in a beginning teacher assistance or assessment program, and most will be subjected each year to state or locally required staff development. Teachers in at least thirty-two states will need to renew their certificates every five or so years by completing college courses or advanced degrees, and nearly all will enjoy state-mandated salary gains, considerably higher than those of the average salary gains for all American workers (Evangelauf, 1987; Feistritzer, 1986; Sandefur, 1986). However, and contradictory to the new state-mandated policies, should a teacher leave during the school year or should the school system be unable to hire *qualified* teachers; forty-eight states are permitted to issue substandard, limited, or emergency certificates to applicants who fail to meet the state's certification standards. Half of the states will grant such a certificate to individuals who have not completed the bachelor's degree (Koff, 1988).

The reasons for such profound, and sometimes contradictory, policy changes can be described by two diametrically opposite views of teacher education reform. At one end is the pervasive belief among some policymakers that, due to an inferior education system, our schools are not functioning well, that students are underachieving, and that the United States is in serious and imminent danger of losing its relative economic and leadership positions in the world. Citing that America's dissatisfaction with its schools has been well chronicled in over thirty national commission and policy reports, best publicized with *A Nation at Risk* (National Commission on Excellence in Education, 1983), these policymakers say that education's problems rest squarely with an inadequately prepared, nurtured, evaluated, and compensated teaching (and related administrative and support) staff.

Furthermore, they say that it is the educational establishment itself (i.e., teachers, school administrators, education professors) that created the *mess* we are in. It is, therefore, highly doubtful that this same establishment is capable of finding the solutions to whatever ails the schools. Nothing short of a revolution imposed through a top-down model will bring about substantive change in public education and in teacher education. Thus, policymakers with this viewpoint mandated extensive regulations for public education. Darling-Hammond and Berry (1988) referred to this as the *first wave* of reform, characterized by restrictive regulations; exclusion of teachers from decision making; and implementation of quantifiable, checklist accountability measures. Policymakers "believed that the profession could not be trusted to reform itself" (p. 7).

At the other extreme is the volume of historical and contemporary literature that speaks of making teaching, once and for all, a respected profession. Characteristics of a profession typically include such factors as the members themselves establishing requirements for training and entry into the field; defining the nature of the work, the structure of the job, and the authority that governs it; developing and monitoring accountability measures (i.e., through accreditation); enforcing a code of ethics, with special concern for clients; and exercising a high degree of autonomy, based on interpretative and applicative knowledge. Well intentioned policymakers at this end of the continuum agree that, indeed, public education needs reform, but that the primary mode for bringing about substantive reform is through nurturing education as a true profession. Citing examples from such prominent existing professions as medicine, law, and architecture, these policymakers are attempting to influence policy through envisioned research, organizational structure reform, and decrees that they feel will enhance professionalization. Darling-Hammond and Berry (1988) referred to this approach to teacher and teacher education policy reform as the *second wave* that replaced bureaucratic mandates with professional and market accountability mechanisms.

> These include recruitment incentives and more competitive salaries for teachers; more rigorous teacher education and structured internships; more decision-making responsibility for experienced teachers with proven expertise and changes in the work structure to legitimize teacher's efforts at collegial problem-solving while reducing the bureaucratic stranglehold on innovation. The notion is that ensuring greater competence in the teaching force, and then allowing it to be used, will reduce the need for rule-based decision-making that ultimately leads to trivialization of school work and the stifling of creative endeavor. (Darling-Hammond & Berry, 1988, p. 6)

The second wave of current and future teacher education reform efforts are based upon two prominent reports: those from the Holmes Group (1986) and the Carnegie Forum (1986).

The Holmes Group is a consortium of slightly less than one hundred of our nation's colleges of education committed to improving teacher preparation and to improving the teaching profession. In effect, the Holmes Group's agenda included five broad goals: (a) strengthening academic and pedagogical training, (b) creating three levels of certification, (c) maintaining rigorous standards for certification, (d) operating professional development schools, and (e) upgrading teacher's working conditions and inservice training. The Carnegie Forum goals were similar, but, in addition to the Holmes' goals, specifically recommended creating a national board to certify teachers who meet agreed-upon standards for what teachers need to know and are able to do. The Carnegie Forum (1986) also suggested mobilizing the nation's resources to prepare minority youngsters for teaching careers. Both reports were essentially born and are being nurtured in research universities, most of which prepare teachers.

With some exceptions, the primary goals of the Holmes Group and the Carnegie Forum appear to be paramount in today's policy action. Some of the goal-related commitments to reform are at issue and certainly some of the processes are questionable in initiating or mandating reforms at colleges and universities. But the research and funding agendas of such groups as the Southern Region Education Board, the National Governors Association, the Education Commission of States, the American Association for Colleges of Teacher Education, the American Federation of Teachers, and the National Education Association imply a commitment to educational reform a la Holmes and Carnegie.

Vocational Teacher Education Response to Education Reform

Recent literature reflects a concern that vocational teacher education may be especially challenged with the tenets of the Holmes Group and by their envisioned educational reform. For example, as stated in an educational reform review article, "These are distressing times for vocational teacher education. Reorganization, unification, modernization, and redirection are just a few of the changes the field is experiencing" (Adams, Pratzner, Anderson, & Zimmerer, 1987, p. 24). More specifically, the authors described a profession facing declining financial support, lower student enrollments, program image problems, outdated curriculum, professional disincentives, and a decreasing teaching force. They were concerned that imposing many of the proposed features of the Holmes Group on vocational teacher education (especially an extensive, postbaccalaureate preparation program and stricter teacher certification) will result in prospective vocational teachers opting for more lucrative positions in the private sector.

Professors and heads of university vocational teacher education programs have echoed the concerns of Adams et al. at various conferences (e.g., the 1986 and 1987 conventions of the American Vocational Association; the Directions for Vocational Teacher Education teleconference sponsored by the National Center for Research in Vocational Education, April, 1987; and the Symposium on Vocational Teacher Education and the Holmes Group,

April, 1988). At the latter symposium, McMurray (1988) stated that the majority of vocational educators in selected (both Holmes and non-Holmes group) member institutions agreed or strongly agreed with the fundamental goals of the Holmes Group, but did not agree with many of the commitments related to the goals—especially the commitment to eliminate undergraduate degree programs.

This author contends that vocational educators, rather than being threatened by the reform efforts, should use their impetus to examine, document, create, and ultimately improve the initial preparation and continual development of its *professional* teaching force. The major tenets of the Holmes Group are posited as broad directions for specific research and development to be planned and carried out by member institutions, rather than as prescriptions or blanket actions to be taken nationally. The Holmes Group's activities are centered at universities that conceivably have the capacity to conduct the research, get things done, and bring about substantive changes in public education and thus, eventually, achieve the goal of professionalizing the teaching force.

Although the original report of the Holmes Group (1986) gave virtually no attention to vocational teacher education, it stated that recommendations would be deferred until there was more "extended consideration of the particular issues [i.e., related to education reform impacting on vocational education]" (p. 72). Fifteen of the eighteen land grant institutions that are members of the University Council for Vocational Education (UCVE) are charter members of the Holmes Group and thus are, presumably, committed to teacher education reform. These and the other universities in the UCVE could and should consider the issues related to educational reform that impact on vocational education.

Furthermore, the popular contentions and policy decisions about vocational teacher education programs—whether they be exciting or boring, effective or ineffective, practical or esoteric, good or bad, better or worse—have usually been based on suppositions, worse-case perceptions, and sparse or shallow data. Teacher education changes are usually initiated through governmental policy decrees (i.e., in state legislatures, with state boards of education, or through politically appointed commissions). The effectiveness of curricular and structural reform efforts have rarely been documented and subsequently researched. Cause-effect relationships of teacher education and subsequent classroom performance are rarely established. Relevant data bases identifying the beginning teaching knowledge domains and teacher performance requirements are just now being codified and published (Imig, 1987). The framework, research, and instruments useful for evaluating professional (in)competence, the interactive effects of various preparation scenarios (preservice, induction, and long-term staff development programs), and other elements of most comprehensive teacher education programs are in relative infancy.

But the knowledge base for teaching and teacher education is growing, and structural reform is taking place. Vocational education needs to be an integral part of this research and of the structural reform. It must begin to function within a vision of an educational profession and in an inquiry mode where the highest quality of research and experimentation govern the hard, tough decisions. Good research should result in good policy. Thus, the remainder of this chapter outlines research priorities relative to vocational teacher education and sets forth an agenda for research in a context of teacher education policy reform.

Vocational Teacher Education: Research Priorities

Reviewing the focus of and priorities for vocational education research over nearly a thirty-year span, Schmidt, Lynch, Frantz, and Hall (1987) concluded, "Determining the substance of and priorities for vocational education research have concerned education leaders, vocational educators, and legislators for many years" (p. 1). A common theme cited by Schmidt et al. was the need for research in vocational teacher education (Adamsky & Cotrell, 1979; David, 1983; Evans, 1983; Hjelm, 1983; Seidman, 1986; Phelps & Hughes, 1986).

In a review assessing the state-of-the-art of vocational teacher education research, Adamsky and Cotrell (1979) concluded that vocational teacher education remains an ancillary activity (i.e., lacking in significant research, which would move it toward becoming an intellectual field) and that most existing teacher education research deals with teachers' occupational competencies and experience, standardization of occupational competency tests, and performance-based teacher education. From a review of recent articles appearing in the *Journal of Research in Vocational Education* and the *Journal of Vocational and Technical Education*, Kelley (1988) and Schultz (1988) concluded, in separate presentations at the annual meeting of the American Educational Research Association, that the major thrust of vocational teacher education research (judging from recent articles in refereed journals) has been identifying teacher occupational competencies, primarily through task analytical methods. Additional recent vocational teacher education research has focused on developing and testing instructional materials and on teaching methods. Apparently the crucial questions about (vocational) teaching, teacher education, certification, recertification, licensing, and the structure of the schools and teacher education, as raised through reports from the Holmes Group (1986) and Carnegie Forum (1986), have not been the subject of research in vocational education. Thus, it can be concluded that vocational teacher education remains today—to use Adamsky's and Cotrell's (1979) words—an ancillary activity.

Following is a comprehensive view of needed research to assist policymakers in focusing priority attention (including legislation, funding, and leadership) in solving some of the more crucial questions related to vocational teacher education. The proposed topics are based on the need for research specifically in vocational education as related to the fundamental tenets of teacher education reform as reflected in the reports of the Holmes Group (1986) and the Carnegie Forum (1986). The topics also relate to current research in teacher education being conducted by researchers in other disciplines and by federal agencies; and on topics suggested in three monographs on research priorities for vocational education, published at Virginia Tech (Lynch et al, 1987). The rationale and expressed needs for research should serve as a focus for a policy research agenda and the conclusions emanating from the research should guide future policy decisions.

Need for a National Data Base

A first priority for research in vocational teacher education is to establish a national data base from which informed studies can be launched. "Accurate, reliable data are essential for making informed decisions no matter what activities are undertaken" (American Association of Colleges for Teacher Education, 1987, p. 1). Currently, there are no valid, reliable, reasonably comprehensive and systematic data collected on vocational teacher education. Those interested in setting priorities for research in vocational teacher education continue to identify the need for (a) demographic, descriptive, and trend data, including that of vocational teacher supply and demand, especially segmented for minority groups, subject areas, and education level (secondary, postsecondary, and adult); (b) the design and structure of teacher education programs; (c) the demographic and psychographic information on the vocational teacher education force; (d) training and training systems; (e) the certification and licensure issues; (f) the preparation to work with special needs students; and (g) the post-completion effectiveness of graduates (Lynch et al., 1987). Several existing data bases and continuing research projects in vocational teacher education can provide an initial conceptual framework and instrumentation for data collection.

According to Zimmerer (1987), three reports, covering the years 1981 through 1987, have been published on the status of vocational teacher education in the UCVE member institutions. The reports attempted to provide current and trend information about the status of vocational teacher education; however, the UCVE consists of vocational education units at only eighteen research-oriented universities. Data collected from these universities cannot be generalized to the more than three hundred colleges and universities in the United States with undergraduate and graduate degree programs in vocational teacher education. Pratzner (1987) surveyed beginning vocational teachers in twenty-four states to determine their perceptions of their competencies and preparation for teaching basic skills and special student populations. Pratzner supplemented this survey with a fifty-state survey to determine the degree to which vocational teachers are subject to competency testing for certification purposes. The seminal works of Zimmerer and Pratzner need to be continued and expanded to include data responsive to other crucial questions related to vocational teacher education and vocational teaching.

Goodlad's university faculty survey (1988), the Study of the Education of Educators, sponsored by the Center for Educational Renewal at the University of Washington, will provide a rich data base for vocational educators. The initial draft of the 36-page questionnaire indicated that data and perceptions are being collected from university teacher educators regarding the mission and focus of their program, teacher reform, a typical work week, climate for teacher education at the institution, university tenure and promotion, student recruitment, certification, quality of program in which they work, the tenets from the Holmes Group and Carnegie Forum, and much, much more. The questionnaire has been designed to enable retrieval for the following areas within vocational education: agricultural education, business education, distributive [sic] education, home economics education, industrial education, vocational/career education, vocational rehabilitation, and adult/continuing education. It is unknown at this time as to just how many responses will be available from each of these vocational groups. However, the Center for Educational Renewal is willing to work with vocational educators either to retrieve the data from questionnaires

already administered or to permit the questionnaire to be adopted for use with vocational teacher educators (K. Sirotnik, telephone communications, April 22, 1988).

In the continuing quest for such information by policymakers, researchers, and practitioner audiences, the federal government has developed a number of data bases to provide information about teachers, teaching, and teacher education. However, gaining access to this information about existing and planned data bases and envisioned research program agendas is difficult (Ashburn, 1988). Furthermore, few studies thus far have investigated questions related to vocational teacher education or to vocational education. Data have been collected primarily from elementary teachers and secondary teachers of English, mathematics, social studies, and science. However, the National Education Longitudinal Study of 1988 is currently soliciting policy relevant data on a number of important educational issues, including vocational education and presumably the graduate and professional training of its teachers. Public data tapes are scheduled for release in the summer of 1989 (Ashburn, 1988). It seems imperative that these data be examined for their policy implications for vocational education; and, indeed, the design of future data bases ought to include appropriate input from vocational educators to ensure including items uniquely relevant to vocational education.

For the past two years, the American Association of Colleges for Teacher Education (AACTE) has been investigating many of the popular myths regarding teacher education (Yarger, 1987). Comprehensive data have been collected from a stratified sample of the AACTE's 713 member institutions, representative of eighty-five percent of the teacher training institutions in the United States. Data have included descriptive information and demographics on students and professors from secondary programs and foundations courses; organizational and structural arrangements; attitudes, perceptions, and future plans of currently enrolled teacher education students; and a wealth of information related to the current tenets of teacher education reform. The AACTE plans to conduct a similar survey of elementary education during the 1988 academic year (Yarger, 1988). Vocational education as such is neither included in the AACTE surveys nor reported in the data analyses except as part of the *other* category. Perhaps data from prospective vocational education teachers and vocational education professors will be included in future AACTE surveys.

Basic Beliefs

The basic beliefs—the philosophy—undergirding vocational education and vocational teacher education constantly need to be examined to ensure that they remain viable in complex, dynamic education, and societal contexts. The literature is replete with debate about the role of vocational education within public education and historic, contemporary, and futuristic postulates can be extracted for their use in philosophical studies. The basic beliefs should then serve as the foundation for further research, policy, and subsequent practice in vocational teacher education.

Suffice to say that vocational education and, by inference, vocational teacher education must be kept current, relevant, and responsive to the needs of its client groups; its colleagues in training and education systems; new research; the international workplace; and reform

and renewal movements. Vocational education must be an integral part of national employment and education policies. To maintain a comprehensive, viable system of vocational education and vocational teacher education requires a constant reevaluation of our fundamental beliefs and then use of them to shape future policy and practices.

Knowledge Base

Programs of vocational teacher education need research specifying the knowledge base underlying teacher preparation. Advocates of professional reform base their arguments on the belief that there exists a knowledge base for teaching that, according to Shulman, consists of a codified or codifiable aggregation of knowledge, skill, understanding, and technology, of ethics and dispositions, of collective responsibility—as well as a means for representing and communicating it" (1987, p. 4).

Undoubtedly, individual programs in colleges and universities will differ in their conceptions of teaching and training; however, a common generic focus on a carefully constructed set of common goals and processes for vocational teacher education graduates should be identified, delivered, and promoted throughout all programs. Studies on the teaching knowledge base can be organized into four broad categories:

- scholarship in content disciplines (e.g., as extracted in vocational education through research in the subject areas; studies in the workplace; career development theory; and other interrelated elements of work, family, leisure, and spiritual life);
- the materials and settings of the institutionalized educational process (for example, curricula, textbooks, equipment, laboratories, job task-based materials, school-community-work environments, school organizations and finance, and the structure of the teaching profession);
- research on human growth and development, learning, teaching, student-teacher relationships, and "other social and cultural phenomena that affect what teachers can do" (Shulman, 1987, p. 8); and
- the wisdom of practice itself.

These wisdom of practice studies, according to Shulman (1987), will constitute a major portion of the research agenda for the next decade and will be designed "to collect, collate, and interpret the practical knowledge of teachers for the purpose of establishing a case literature and codifying its principles, precedents, and parables" (p. 12).

Using a knowledge base for teaching rests on two fundamental assumptions related to teacher education: (a) teachers will acquire a thorough grounding in the content or subject matter to be taught, and (b) teachers will become well grounded in the judgments and standards for choosing the content and delivery systems appropriate for the client groups they are serving. According to Shulman (1987),

> The key to distinguishing the knowledge base of teaching lies at the intersection of content and pedagogy, in the capacity of a teacher to transform the content knowledge he or she possesses into forms that are pedagogically powerful and yet adaptive to the variations in ability and background presented by the students. (p. 8)

Thus, the knowledge base for vocational teacher education should come from the content or subject matter disciplines (e.g., business, marketing, agriculture, engineering technology); studies of the knowledge, ethos, and structure of the workplace; unique vocational subject matter curricula and pedagogical knowledge or *tools of the trade* for teachers; empirical studies of teaching; information on the institutions in which vocational education is offered, including secondary, postsecondary, higher education institutions, industry, and proprietary schools; learning theory and applicable motivation techniques; knowledge of educational ends, purposes, and values and their philosophical and historical grounds; and demonstrated practices of effective vocational teachers.

Delivery Models

Closely related to the need for research on the knowledge base is the need for research on models for delivering vocational teacher education. Alternative models should be designed, implemented, and evaluated based on the available theory and data.

At this time, it is not recommended that only one delivery model (e.g., postbaccalaureate study in education building upon a degree in arts and sciences) be widely implemented for vocational teacher education. Generalizable empirical data, including cumulative results from case study or naturalistic inquiries, are not available to warrant massive overhaul of our nation's more than three hundred vocational teacher education programs. Rather, attention should be given to ensuring that vocational education teachers possess the fundamental academic credentials typically expected of a professional, implementing knowledge as a scientific base for teaching, and fostering among teachers and teacher education students an attitude that supports experimentation and continued learning. Needing to be researched are the appropriate academic credentialing, the subject matter, and the knowledge base that can best be delivered by a given model in a given timeframe (e.g., four years, five years, six years) and by a given structure.

Closely related, the environments and the processes in which vocational teacher education takes place need to be examined to ensure that the knowledge base can be delivered. Vocational teacher educators need to do joint planning and development with Education, 1985, p. 8). This generally poor image of vocational education within the high school, a *lower quality* of students, and teachers not feeling successful in dealing with the *new populations* were three of the six reasons why vocational educators left teaching (Garcia, 1983; Lynch, 1986; Tomlinson, Pontius, & Kolesar, 1983). Thus, research is needed as a basis from which to design teacher education programs and experiences to enhance the effectiveness of vocational teachers in working with at-risk populations.

their colleagues in the traditional arts and sciences; departments or colleges that provide related subject matter disciplines (e.g., agriculture, business, home economics); other academic units within education; and perhaps other university administrative units (e.g., cooperative education or the cooperative extension service). The role, value, and structure of industry-based occupational experience need to be researched for their effects on the preparation of vocational teachers. In fact, the role of all clinically based experiences and their effects on teacher preparation and subsequent teaching need to be examined. The ultimate goal is to ensure that vocational teachers possess the academic credentials and skills expected of all professional educators and the unique knowledge and skills needed by vocational educators.

At least three delivery models seem initially appropriate: (a) postbaccalaureate study, (b) an undergraduate baccalaureate degree in teacher education, and (c) individually prescribed programs for a nontraditional clientele of adult students. The first model should include postbaccalaureate study compatible with the most salient recommendations of the Holmes Group. The second model might be a restructured baccalaureate degree teacher education program incorporating modifications gleaned from research on a knowledge base for teaching. A third model would consist of a nontraditional client group of relatively older people who have amassed life experiences as parents, employees, employers, and members of the armed forces. Such a model would use individually prescribed teacher preparation programs. Effective recruitment techniques, flexible methodology appropriate with solid content and objectives, field-based experiences, cognitive and performance evaluation instruments, satellite instructional transmission, and teaching laboratories should facilitate delivery of all three models and also provide rich avenues for research. A research-oriented teacher education laboratory would further facilitate systematic research on teaching, teacher education, and related topics.

At-Risk Populations

One of the top-ranked priorities for research in vocational education, as it is in much of education, concerns how best to teach *at-risk* students and, by inference, how best to teach those who are going to teach at-risk individuals. The at-risk population consists of a considerable portion of our country's youths—perhaps twenty-five to thirty-five percent—and a growing part of the adult population. The United States still experiences a twenty-four percent dropout rate among high school youth and as much as fifty percent in some of the country's largest cities.

The federal government, through vocational education legislation, has continued to target larger percentages of federal funds for support services and modified or supplemented vocational education programs. The intent is to address the education and employability needs of students who are disadvantaged; who have chosen to enter nontraditional career fields; who don't speak English as a native language; and who are single parents, incarcerated, older Americans, and other individuals broadly identified as at-risk learners. In some secondary schools, this federal policy of increased support for special populations has caused school officials to "often view and use some vocational programs as a dumping ground for less able students" (National Commission on Secondary Vocational

Differentiated Staffing

The vision of restructuring schools to include at least three levels of responsibility among the teaching force provides a valuable resource for experimental design and research in vocational education. In fact, differentiated staffing may have been conceptualized based on the experiences of many in the vocational education teaching force. Potential vocational education teachers who possess *real world* credentials gained from experiences in business, industry, and the military might enter teaching at the instructor level. This is not unlike the present situation in trade and industrial education and in health occupations education where the vast majority of the teachers come from business, industry, or human service occupations and not from undergraduate teacher education majors. Compatible with the Holmes Group's proposal for structural reform in the public schools, these instructors would teach only under the systematic guidance and supervision of a career professional teacher. Both levels of teachers in the school (e.g., career teachers and career professional teachers) would be prepared both occupationally and in pedagogy.

Recruitment

Inferred from an examination of four data sets, socioeconomic factors, and a trend analysis, the number of well-qualified graduates preparing to teach in all of education, including vocational education, appears to be bleak (Lynch, 1986). The number of minorities choosing to teach is especially discouraging. In her survey of education students at a stratified sample of AACTE member institutions, Zimpher (1988) found only 4.3 percent of the students were black and only 1.5 percent were Hispanic. No black students were enrolled in education programs at the predominantly four-year liberal arts colleges included in the survey. Massive recruitment efforts will need to be launched to ensure that classrooms are staffed with competent, well-prepared teachers, including a reasonable proportion of minorities. Effective techniques for recruiting people into teaching need to be identified and implemented.

The annual demand for elementary and secondary teachers has been predicted to average about 200,000 per year between 1988 and 1993. Supply projections, using current and anticipated college majors in education, indicated that about sixty-five percent of the demand will be met by individuals currently or anticipating majoring in education. Beginning in 1988 and continuing at least through 1993, the demand for teachers at the secondary level is foreboding relative to anticipated supply (Plisko & Stern, 1985).

It also appears there will be a shortage of vocational teachers at the secondary level. Frantz (1984) noted that national shortages of vocational teachers appear most severe in agriculture, industrial arts, trade and industrial education, and marketing education. There appears to be no projections on the need for or supply of vocational education teachers at the postsecondary and higher education levels. However, the *Occupational Outlook Handbook* projected a nineteen percent increase in adult vocational education teachers between 1985 and 1995, which means an addition of 48,000 positions and "generally favorable prospects for vocational education teachers" (as cited in "Job Outlook Bright," 1988, p. 3). Not only numbers are relevant to teacher supply and demand. As pointed out

in a discussion on teacher education issues at the convention of the American Education Research Association, there probably won't be a teacher shortage in the 1990s. School officials will manage to staff classes with teachers; it's just that "we may not be very satisfied with them" (panel discussion, L. Darling-Hammond, April, 1988).

Few of the thirty recent major reports concerned with the apparent poor quality of American education discussed in more than an anecdotal way the recruitment of teachers. Apparently few university colleges of education have done much to recruit students into teacher education. In a survey of 715 AACTE member institutions in the fall of 1985, Feldmann and Fisher (1986) found fewer than thirty percent of those reporting doing anything to recruit students. The few recruitment activities consisted almost entirely of contacts (e.g., letters and brochures mailed and direct visits) with high school students. Almost no recruiting was directed toward those currently enrolled in other programs at the university or in nontraditional environments. Surely, if classrooms are to be staffed with professionally trained teachers, a comprehensive and systematic recruitment plan for all teachers, including vocational education teachers, needs to be researched, implemented, and evaluated.

Professional Standards

Another major area of needed research concerns the broad category of professional standards. Both the Carnegie Forum (1986) and the Holmes Group (1986) recommended high standards for those wishing certification as teachers. The Holmes Group called for standards of entry to the profession—examinations and educational requirements—that are professionally relevant and intellectually defensible. The Carnegie Corporation is currently funding a multi-million dollar effort at Stanford University to capture the essence of classroom teaching, establish and experiment with a teacher-assessment center, document effective classroom activities, collect data on many different kinds of teaching activities, and design experiences to help minority students pass "new kinds of [teacher] assessments" (Olson, 1988, p. 21). The ultimate goal at Stanford is to create a national board of professional teaching standards, with a regional and state membership structure, to establish high standards for what teachers need to know and be able to do and to certify teachers who meet that standard. The National Governors Association has also provided some initial funding for a new Interstate Teacher Assessment and Support Consortium with a major goal of ensuring that state licensing programs are compatible with plans for voluntary teacher certification by the new National Board for Professional Teaching Standards (Olson, 1988).

Research on admission into teacher education, state policies on certification, credentialing, and success criterion as measured by teacher and student success factors have frequently been cited as needed in vocational education (David, 1983; Lynch et al., 1987; and Schmidt et al., 1987). Vocational educators need to be actively involved in the initial research and design of any policies, instruments, or procedures to ensure that the beliefs, knowledge base, and processes associated with vocational education and vocational teaching are represented in any elements used initially to certify teachers, subsequently to

assess their performance, and eventually to certify them as professionals. As stated by Shulman (1987),

> If teachers are to be certified on the basis of well-grounded judgments and standards, then those standards on which a national board relies must be legitimized by three factors: they must be closely tied to the findings of scholarship in the academic disciplines that form the curriculum . . . as well as those that serve as foundations for process of education . . .; they must possess intuitive credibility (or 'face validity') in the opinions of the professional community in whose interests they have been designed; and they must relate the appropriate normative concepts of teaching and teacher education. (p. 5)

Vocational educators are aware of the limitations and (im)proper uses of tests and performance based evaluation instruments; they know from experience the inadequacy of paper-and-pencil tests for evaluating both student and teacher performance. They therefore need to assume more responsibility for the initial research and then for implementing appropriate policies and procedures for initially credentialing, evaluating, and permanently certifying or licensing teachers. As cited earlier in this chapter, two of the goals of a profession are that the professionals themselves establish requirements for training and entry and that they indicate specific measures for accountability.

Conclusions

It was the primary purpose of this chapter to review contemporary teacher education reform within a policy context to (a) encourage policymakers to include vocational education in future policy actions, and (b) present a derivative review of research needs in vocational teacher education within a context of teacher education policy reform, but compatible with the contemporary philosophy and uniqueness of vocational teacher education.

Two somewhat disturbing conclusions were inferred from a review of the extant literature, an examination of much of the current research related to teacher education reform, in-person discussions with education policymakers and policy implementers of the Holmes Group and others, and personal communications with researchers in teacher education. First of all, vocational teacher education does not currently seem to be on the national agenda for any creative discussion nor for any research activity emanating from any of the teacher education reform efforts. Vocational educators do not appear to be on any of the boards or involved with any of the national committees established to conduct research and to implement the recommendations of the Holmes Group and the Carnegie Forum reports. Personal communications with a few board members and staff from the Holmes Group indicated that they had little knowledge of vocational education nor any plans to investigate the impact of reform movements upon vocational teacher education (with the possible exception of Goodlad's study at the University of Washington). Those who (may) influence and research policy are not considering the effects of reform on vocational education. They simply do not know vocational education that well.

Secondly, despite relatively large amounts of federal money provided for research in vocational education and despite teacher education's being cited as a topic for needed research, little progress has been made in investigating the most important questions of

substance and process within vocational teacher education. Without a theory base, data, or a framework to support or to refute the major tenets of the reform reports, vocational education may have inadvertently contributed to its "distressing times" (Adams et al, 1987, p. 24). Often targeted federal and state funds have been used to protect teaching positions at colleges and universities and to lobby for the status quo, rather than to investigate why vocational education ought to be there, what it ought to do, how well it is doing it, and how might it do better.

To enhance the odds of vocational teacher education's appearing on the research agenda for national educational policymaking groups and to enhance the odds for substantive research, a national center must be established for vocational teacher education as a major component of the federally funded National Center for Research in Vocational Education. The center should be initially charged with developing a national data base for vocational teacher education and for networking with colleagues at other teacher education research centers and with those working under the auspices of policymaking groups. Such a vocational education research center would investigate crucial questions relative to vocational teaching and teacher education including those discussed in this chapter. Significant research on vocational teaching, vocational teacher education, and appropriate related topics comprising a professionalism paradigm for teacher education is essential to the eventual development of vocational education as an important and legitimate component of the education profession.

Vocational education and vocational teacher education must be integral components of any future national agenda when educational reformers and futurists surface prominently again. Vocational education must be ready with a solid theoretical framework, high quality research, and good ideas for improving the education and professionalism of its teaching force and consequently the education, employability, and productivity of our country's youths and adults.

References

Adams, D. A., & Diehn, D. A. (1984). *Vocational teacher education programs in the United States.* (Informational Monograph No. 1 for the University Council for Vocational Education). Columbus: The Ohio State University.

Adams, D. A., Pratzner, F. C., Anderson, B. H., & Zimmerer, M. E. (1987). Vocational teacher education in an era of change. *Vocational Education Journal, 62* (4), 24-27.

Adamsky, R. A., & Cotrell, C. J. (1979). *Vocational teacher education: A review of the research.* Columbus: The Ohio State University, The National Center for Research in Vocation Education.

American Association of Colleges for Teacher Education. (1987). *Teaching teachers: Facts & figures* (Research about Teacher Education Project). Washington, DC: Author.

Ashburn, E. A. (1988, April). *Critical issues about teachers: A description of OERI-funded research from the user's perspective.* Paper presented at the annual meeting of the American Education Research Association, New Orleans, LA.

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century.* New York: Carnegie Corporation.

Darling-Hammond, L. (1988, April). *Will there be a teacher shortage? Insights from the determinants of teachers' career patterns.* Panel contribution at the annual meeting of the American Education Research Association, New Orleans, LA.

Darling-Hammond, L., & Berry, B. (1988). *The evolution of teacher policy.* Washington, DC: The Rand Corporation.

David, H. (1983). A summing up. In H. David, H. F. Hjelm, & R. C. Harris (Eds.), *Vocational education research in the 1980s* (pp. 140-146). Bloomington, IN: American Vocational Education Research Association in cooperation with the Indiana University Publication Office.

Evangelauf, J. (1987, September 2). School-reform drive spotlights colleges' education of teachers. *The Chronicle of Higher Education, 34* (1), 48, 50.

Evans, R. N. (1983). Research suggestions from the report of the committee on vocational education research and development. In H. David, H. F. Hjelm, & R. C. Harris (Eds.), *Vocational education research in the 1980s* (pp. 2-9). Bloomington, IN: American Vocational Education Research Association in cooperation with the Indiana University Publications Office.

Feistritzer, E. C. (1986). *Teacher crisis: Myth or reality?* Washington, DC: National Center for Educational Information.

Feldmann, M. E., & Fisher, R. L. (1986, February). *The quality of our students and teacher education recruitment programs.* Paper presented at the meeting of the Association of Teacher Educators, Atlanta, GA.

Frantz, N. R. (1984). Teaching teachers: A search for quality. *VOC ED, 59* (8), 47-48.

Garcia, G. (1983). Desire for career change among vocational teachers. *The Journal of Vocational Education Research, 8* (1), 42-52.

Goodlad, J. (1988). [The study of the education of educators]. Unpublished raw data. Spokane: University of Washington, Center for Educational Renewal.

Hjelm, H. F. (1983). Preface. In H. David, H. F. Hjelm, & R. C. Harris (Eds.), *Vocational education research in the 1980s* (pp. iii-iv). Bloomington, IN: American Vocational Education Research Association in cooperation with the Indiana University Publications Office.

Holmes Group, Inc. (1984). *Tomorrow's Teachers: A report of the Holmes Group.* East Lansing, MI: Author.

Job outlook bright for vocational educators. (1988, June 10), *Legislative Briefs,* p. 3.

Imig, D. G. (1987, December). On the knowledge base for beginning teachers. *AACTE Briefs, 8* (9-10), 3.

Kelley, M. E. (1988, April). *Published vocational education research: Past, present, and future.* Paper presented at the annual meeting of the American Education Research Association, New Orleans, LA.

Koff, R. H. (1988). Making teaching a profession. *The Clearinghouse, 61* (7), 297-299.

Lynch, R. L. (1986). Recruitment and retention of vocational education teachers. In *Achieving excellent in vocational teacher education* (pp. 1-46). (U. S. Department of Education Contract #500-85-137). New York: Institute for Research and Development in Occupational Education, City University of New York.

Lynch, R. L., Asche, F. M., Asselin, S. B., Burge, P. L., Finch, C. R., Frantz, N. R., Hall, S. L. W., McLaughlin, J. A., Oliver, J. D., & Schmidt., B. J. (1987). *Using the nominal group technique to determine priorities for vocational education research.* Blacksburg: Virginia Polytechnic Institute and State University, Division of Vocational and Technical Education.

McMurray, J. G. (1988, April). *Impact of the Holmes Group on vocational teacher education.* Paper presented at the symposium on Vocational Teacher Education and the Holmes Group, University of Illinois at Urbana-Champaign.

National Commission for Excellence in Education. (1983). *A nation at risk: The imperative for education reform.* Washington, DC: U. S. Government Printing Office.

National Commission on Secondary Vocational Education. (1985). *The unfinished agenda, the role of vocational education in the high school.* Columbus: The Ohio State University, The National Center for Research in Vocation Education.

Olson, L. (1988, June 8). Capturing teaching's essence: Stanford team tests new methods. *Education Week, 7* (37)1, 20-21.

Phelps, A. L., & Hughes, R. P. (1986). The unfinished agenda: Some implications for research in secondary vocational education. *Journal of Vocational Education Research, 11* (2), 51-72.

Plisko, V. W., & Stern, J. D. (Eds.). (1985). *The condition of education, 1985 edition.* (NCES Report 85-402). Washington, DC: U. S. Government Printing Office.

Pratzner, F. C. (1987). *Vocational teacher education: A survey of preservice and inservice preparation.* Columbus: The Ohio State University, The National Center for Research in Vocational Education.

Sandefur, J. T. (1986). State assessment trends. *AACTE Briefs, 7* (6)12-14.

Schmidt, B. J., Lynch, R. L., Frantz, N. R., & Hall, S. L. (1987). *Future research priorities as identified by major providers of vocational education research.* Blacksburg: Virginia Polytechnic Institute and State University, Division of Vocational and Technical Education.

Schultz, J. (1988, April). *Published vocational education research: Past, present, future.* Paper presented at the annual meeting of the American Education Research Association, New Orleans, LA.

Seidman, P. F. (1986). Where we've been in vocational education research and development: A "geological" survey. *Journal of Vocational Education Research, 11* (4), 43-61.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57* (1), 1-22.

Tomlinson, R. M., Pontius, D. R., & Kolesar, J. (1981). *Industrial education programs and personnel in Illinois secondary schools, a pilot study.* Urbana: University of Illinois at Champaign-Urbana.

Yarger, S. J. (1987, April). *A national study of teacher education: Introduction, methodology, and procedures.* Paper presented at the annual meeting of the American Education Research Association, Washington, DC.

Yarger, S. J. (1988, April). *1988 update of a national study of teacher education: Introduction, methodology, and procedures.* Paper presented at the annual meeting of the American Education Research Association, New Orleans, LA.

Zimmerer, M. E. (1987). *The status of vocational teacher education in University Council for Vocational Education member institutions--1981 through 1987* (Special report prepared for the UCVE). Laramie: University of Wyoming, Department of Vocational Education.

Zimpher, N. L. (1988, April). *Perceptions of students about their teacher education programs.* Paper presented at the annual meeting of the American Education Research Association, New Orleans, LA.

Richard L. Lynch, Ed.D., is a professor, Division of Vocational and Technical Education, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.